



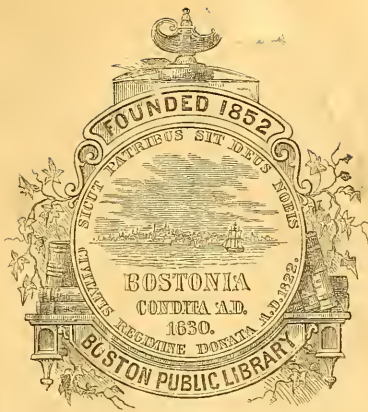


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PAMPHLETS.

*Agriculture,  
Essays.*

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# PREMIUM ESSAYS,

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1877.





# PREMIUM . ESSAY

ON THE

# DISEASES OF SWINE:

THEIR

CAUSES, SYMPTOMS, PREVENTIVES AND REMEDIES.

WRITTEN FOR THE

AMERICAN BERKSHIRE ASSOCIATION.

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# THE AMERICAN BERKSHIRE ASSOCIATION.

ORGANIZED MARCH, 1875.

OBJECT.—*To collect, revise, preserve and publish the pedigrees of pure-bred Berkshire Swine; also to collect and disseminate information calculated to advance the interests of Swine breeders generally.*



The following Premium Essay on the "Diseases of Swine, their Causes, Preventives and Remedies," is the result of the offer, by this Association, of One Hundred Dollars for the best approved original writing on the subject. The gentlemen constituting the committee selected to make the award, were Prof. James Law, of Cornell University, N. York; Prof. Andrew Smith, of Toronto Veterinary College, Canada; Hon. T. C. Jones, of the "National Live Stock Journal," and E. G. Bedford, Esq., of Paris, Kentucky.

Following this Essay, we reproduce the One Hundred Dollar Premium Essay on the "Origin, Breeding and Management of Berkshire Swine" published by the Association last year.

The value to swine breeders of such writings as these must be apparent to all. The efforts of the Association in this direction seem to be duly appreciated on every hand. The same may be said of that department of the work devoted to the registration of Berkshire Pedigrees. Some opposition and criticism at the commencement of the enterprise was naturally expected; yet we firmly believed that a Berkshire Record, if rightly conducted, would in a short time prove itself such an invaluable aid to breeders, that they would be glad to see it permanently established. It is, therefore, a special pleasure to be able to say, that the opposition to the work has been less, and the co-operation by breeders for its continuance more general, than the most hopeful had anticipated.

In the list of owners of animals recorded to the present date, which we publish herewith, will be found the names of nearly all the leading Berkshire breeders in America, as also a number of the most noted on the other side the waters. No better evidence of a general belief in the utility of a public record of this character could be offered than is furnished by this array of names.

PHIL. M. SPRINGER, Sec'y.

Springfield, Ill., August, 1877.

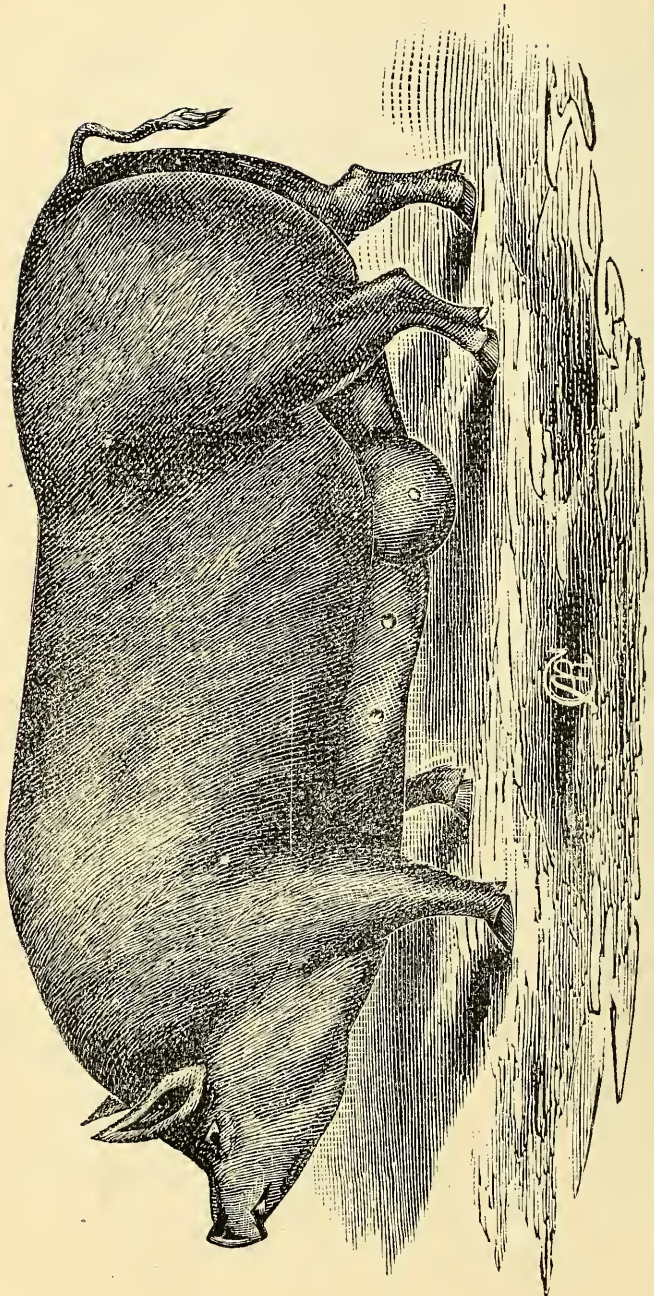


Fig. I.

## PREMIUM ESSAY.

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### RUPTURE—*hernia*.

By Hernia is meant the protrusion of any organ or viscus, or part thereof through an opening, either natural or artificial. The term Hernia is most commonly applied to rupture or displacement of portions of the intestines, omentum or other abdominal organ.

Hernia in the pig is of little consequence as compared with Hernia in the horse; therefore, it will only be necessary to notice two or three of the most frequent forms in which it occurs in swine.

I. Ventral or abdominal hernia is a protrusion through an artificial opening in the abdominal walls. (See Fig. 1.) This may be caused by a direct injury, and is easily seen, and most frequently occurs to young animals. If it does not become strangulated, that is, constricted at the opening through which it has passed, there is little danger to be apprehended. Usually, little can, or need be done in the way of surgical treatment. Animals thus affected usually do very well, and fatten as readily

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NOTE.—In this Essay I have endeavored to describe the most of the more important diseases that affect Swine.

The matter herein contained has been condensed as much as is deemed consistent with a reasonable explanation and description of the several diseases; giving their causes, symptoms, preventives and treatment; considering that in an essay like the present, it would be impossible to enter into the minute scientific detail of most diseases; and also believing that in this form, it will be more acceptable for all practical purposes.

To further a better explanation of the subjects herein treated of several illustrations are introduced. The most of these sketches are from life.

Other diseases peculiar to this animal might have been enumerated, but are omitted, because some are too unimportant, others not amenable to treatment, and others again so obscure and difficult to diagnose as to render mention of them of no practical benefit whatever.

A. R. COLMAN, V. S.

as others not so injured; the pig not having occasion to undergo any violent exertion, as in the case of the horse. It is advisable that the animal be kept quiet and comfortable, and fattened as speedily as possible, paying attention to the rupture, so that should any obstruction or strangulation of the part occur, it may be slaughtered at once, in preference to trying any remedial measures.

II. Umbilical hernia is a protrusion through the navel opening. This occurs only to young animals at birth or very soon afterwards. It is often congenital. In early life, as the animal grows, it often retracts and disappears naturally. If it be very desirous to keep the animal for stock or show purposes, early bandaging should be adopted.

III. Scrotal hernia is a descent of the intestine into the scrotum. This usually occurs in young animals, and is often not detected until the animal is castrated, when the portion of intestine will protrude through the incision made by the operation. When this is the case, it should be returned as soon as possible, and a few stitches put through the scrotum, allowing a small dependent orifice for the escape of any matter that may form, but not sufficiently large to admit of the passage of the intestine. When so treated, most cases usually do well. The animal should be kept quiet, and on rather a low sloppy diet for a few days, and allowed plenty of clean water to drink.

There are other forms of Hernia which, however, seldom occur in the pig, and when present would rarely be discerned, or amenable to treatment, so that it is not necessary to describe them here. The three above mentioned are those most frequently met with in this animal, and these, as a rule cause very little trouble. When present, the best plan is to keep the animal as much as possible on a laxative diet, not allowing it to become constipated.

#### PILES.—*hæmorrhoids.*

These are the result of abnormal development of the veins of the rectum—or sometimes also of the skin and mucous membrane—at a junction with the opening of the anus, forming bleeding tumors, and giving rise to much pain and inconvenience. But, luckily for the pig, they are of rare occurrence, but whether this is to be attributed to the short duration of life usually allotted to this animal, or that he is naturally more exempt than other animals, it would be difficult to explain.

*Symptoms.*—The presence of such tumors form the leading characteristic, often giving rise to great constitutional disturbance,



such as stiffness and disinclination to move about, dullness, dejected appearance, breathing fitful, the bowels become irregular, and emaciation generally follows. At the end of some considerable time, the anus and rectum often present a most loathsome and pitiable appearance, and the animal may sink under great prostration and debility. An examination of the rectum in the earlier stages will often disclose a number of tumors containing blood. These are easily burst by pressure, which frequently takes place on the passage of fœces.

*Treatment.*—Use clysters to open the bowels, and administer a laxative drench, such as Epsom salts, 2 to 4 ounces; afterwards give sedatives, as laudanum, 2 to 6 fluid drachms, and let the diet be of a laxative character. The local treatment consists of crushing the tumors, or exciting them by means of ligatures, and applying mild astringent or caustic washes, such as nitrate of silver 5 to 10 grains to 1 ounce of water; or, sulphate of zinc 2 drachms, laudanum 1 fluid drachm to 1 pint of water. Apply to the part either with a small syringe or piece of sponge or rag.

#### PROTRUSION OF THE RECTUM—*prolapsus ani.*

Protrusion of the rectum is not an unfrequent occurrence, especially among young animals.

*Causes.*—From violent straining when constipation is present, diarrhœa, impaction of hard fœces in the intestines, worms, piles, exposure, and injuries to the anus or intestine, or it may occur during difficult parturition, or as a result of straining when stitches are placed across the vulva to prevent the inversion of either the uterus, vagina or bladder. In general it occurs when the system is in a weak and debilitated condition.

*Treatment.*—When of recent occurrence, the color bright, and of moderate dimensions, the operation and treatment is comparatively simple, and generally successful. The parts require to be carefully washed and cleaned with tepid water, and sometimes a few scarifications to the part may be found necessary to reduce the swelling, and then by careful and delicate manipulation and a little patience, the part may generally be successfully returned. A little sweet oil will often greatly facilitate the operation, afterwards a few mild astringent and anodyne injections may be necessary, such as: laudanum, 1 fluid drachm; sulphate of zinc, 2 drachms to 1 pint of water. If there should be much straining afterwards, which is often the case, it may be necessary to administer full doses of opium or chloroform. The doses of opium

would be from 10 to 30 grains; or chloroform, 20 to 40 minims or drops. In some cases the part will be protruded six or seven inches and swollen very considerably; continued fomentations will then be necessary, for probably two or three hours.

It often happens that the inversion has existed for several days before being noticed or anything done for it, in which case it would be of a livid, dark-purple, or black color, and much tumefied. Often it is injured by the movements of the sufferer, or more frequently when there are several together, it is severely lacerated by the teeth of the other pigs; in which case it is often necessary to excise the part. If in a large animal, it is best to secure, by two or four stitches, the edges of the severed rectum to the sides of the anal opening. In most cases free injections are beneficial and necessary. Two cases occurring during the past winter may be mentioned, in which the parts were excised. They were young pigs, about four or five months old. In both cases, exposure and constipation were believed to have been the exciting causes. The first had been inverted some three days before proper attention was given it, and was badly swollen and lacerated by the other pigs. It was excised at once, and laudanum and tincture of arnica, equal parts to ten parts of water, applied. The other one had been inverted about twenty-four hours, and although considerably tumefied, it was returned, and two stitches put across the sphincter ani; but in the course of the next day, from over-straining, arising from the presence of the stitches, these broke away and it protruded again, worse than before, so that it was considered necessary to excise this also. Both operations were successful, the pigs doing remarkably well afterwards. In such cases it is well to keep the sufferer on as laxative diet as possible, to obviate constipation; to which end also frequent injections are often beneficial. These might consist of tepid water, to which may be added a little starch in solution, or new milk.

#### APOPLEXY.

This is a cerebral disorder, caused by an excessive determination of blood to the brain, or congestion, and may be produced by over-driving in hot weather, a too plethoric condition of the system, over-feeding, or by excitement.

There is some diversity of opinion respecting apoplexy in the pig, and there are several forms described; some writers holding it to be a purely nervous type, others classing it among the blood diseases as anthrax; but it often occurs under circumstances, when it is

quite easy to determine that the malady is not of the nature of anthrax. Plethora and confinement are chiefly predominate in its production. It often affects animals changed from a low, poor diet, to too rich and abundant feeding.

*Symptoms.*—These are usually few at the outset, as the affection generally occurs with great rapidity. A restlessness may be observed with bloodshot eyes, and variable appetite, with constipation, and scanty excretion of feces and urine, or a comatose condition. The animal may be feeding, when it may be observed to suddenly stop, reel, stagger and fall down dead—a quantity of froth or foam issuing from its mouth.

*Post-Mortem Appearances.*—Fluidity of blood in the vessels, and dark in color, purple or black patches (ecchymosis), with large portions of extravasated blood between the tissues, and beneath membranes, and more or less serum present. The lungs are congested, and the heart full of partly coagulated blood, the brain is congested, the arachnoid membrane covered by spots of ecchymosis, and in the ventricles is an excess of fluid.

*Treatment.*—Apoplexy in the pig being a most fatal complaint, endeavor if possible, to ascertain correctly, and remove the exciting cause. If from a too plethoric condition of the system—owing to the nature of the food—the animals should be placed on low diet, and it might be advisable to administer an emetic, such as tartar emetic 3 to 8 grains and white hellebore 2 to 4 grains. Afterwards the following might be given: Epsom salts 2 to 4 ounces; calomel, 3 to 10 grains; ginger,  $\frac{1}{2}$  to 4 drachms in 1 pint of water. If very much constipated, use frequent clysters. Keep on low diet, and pay strict attention to cleanliness. The treatment of this disease is in the majority of cases anything but satisfactory, therefore the greatest attention should be directed to the removal of the exciting cause, as a preventative measure for the welfare of the yet unaffected animals.

#### EPILEPSY.

This disease is cerebro-spinal, and is generally organic; but it may be functional, and symptomatic of irritation in other parts, as in the stomach, intestines, or other organs; although up to the present time little light has really been thrown on its nature. It is due most probably to some lesion or peculiar morbid condition of the nervous system, and may be to some peculiar condition of the blood; probably arising from defective nutrition, or it may be due to worms, or parasites. It is characterised by sudden fits.

*Symptoms.*—These mainly comprise severe convulsions, with coma, and foaming at the mouth. The animal may be in apparent health, and without any previous manifestations of disorder, or at all events may appear quite calm and conscious, when without any warning a paroxysm will come on. If standing it may be observed to stagger, stare, and commence violently clamping the jaws—with foaming at the mouth. The animal may then drop on its haunches, (see Fig. 2) and the fore legs become rigid, the muscles of the neck contract, the head is thrown up, and violently thrown from side to side, or jerked upwards, the muscles of the body are also severely convulsed. Urine and fæces are discharged involuntarily, and the creature breathes with difficulty, the tongue often protrudes, and is badly bitten; at length the animal falls, straining, struggling and unconscious.

The mucous membranes are red and congested and the heart beats violently, the convulsive phenomena speedily subsides, and forms the convulsions and death soon ensue; in others, the fits the animal regains its feet or else falls into a deep sleep. In severe grow weaker and less frequent until they disappear altogether. As a rule they are never of very long duration.

*Treatment.*—This is not in the majority of cases at all satisfactory. Epilepsy is rarely recoverable. Assuming the affection to have no other origin than that of a purely nervous disorder, extract of belladonna, 5 to 20 grains, would appear to be indicated; but if the abnormal action can be traced to worms, then their eradication should be provided for. Whatever may be the exciting cause, endeavor to remove it. Good food, proper housing, attention to the general comfort, and opportunity for exercise, are indispensable. At the period of attack, little can be done; the dashing of cold water over the head is the most proper course to pursue. After the seizure has passed, existing irregularities may then receive attention, and their removal attempted. A very useful vermifuge is Areca nut pulverized in 1 drachm doses, given fasting, and afterwards followed by a purgative, such as Epsom salts, 2 to 6 ounces, or castor oil, 2 to 4 ounces. With the exception of the Epsom salts, which might be given in the food, the other three medicines had better be administered in the form of a drench.

#### MANGE OR ITCH—*scabies*.

Mange is a skin disease of a purely local nature, due to an insect (*sarcoptes suis*), a species of acari, (see Fig. 3) which induces



Fig. 2.

irritation, ulceration, suppuration and encrustation on the surface of the body generally.

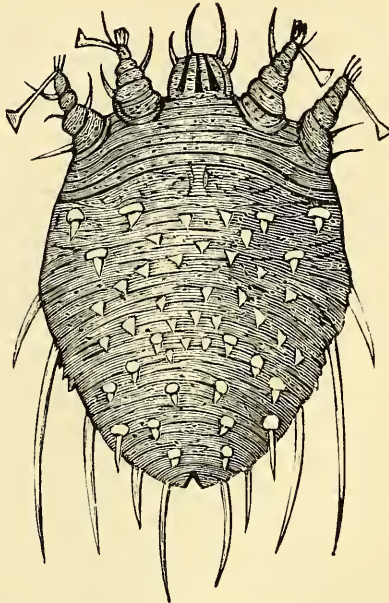


Fig. 3. (Highly magnified.)

It is a contagious disease, never originating spontaneously, and requiring for development the passage of either the parasites or their eggs from diseased to healthy animals. There are some important points in the history of mange or scabies which apply to this disease as it affects the animal kingdom generally. There is no species in the class mammalia that is not attacked with an insect inducing such a disease, if we except, perhaps, those that live mostly in water. It has been ascertained that, though the weak, dirty and ill-nourished condition of some animals renders them very liable to the disease, they can only become affected when placed in contact either directly or indirectly with diseased animals. A most important point, very clearly established, is that although any animal may accidentally be the carrier of contagion between other two—such as a cat or dog carrying disease from one horse to another—that it is essential for the development of a real mange on any animal, that the insect should be proper to that animal. Thus men engaged around mangy horses, carry the malady from one animal to another, and suffer very slightly, and only for a short time themselves. The parasite which lives on

the horse does not live on man, and the parasite which lives on the sheep does not contaminate the shepherd's dog, though the latter may, like the shepherd, or the many rubbing places, pens, railroad trucks, etc., be the means whereby the malady spreads. It appears, however, that animals of the same genus, though of different species, may be attacked by precisely the same insect; thus, for instance, the cat, the lion, the tiger, and other feline animals, have one kind of insect common to all. The pig is, perhaps, less affected by this troublesome disorder than other animals; anyway it is in it the least observed.

*Symptoms.*—Considerable irritation and itching occurs, the animal manifesting great uneasiness, continually rubbing itself, and does not thrive. The insect is situated under the scales of the cuticle, and very difficult, generally, to detect, but may sometimes be found by a powerful magnifying lens.

*Treatment.*—Apply topically any of the following dressings: Carbolic acid, 1 ounce, to water, 16 ounces; or mercurial ointment; but care should be taken not to apply these to too great a surface of the body at one time. Another dressing is oil of tar, sulphur, and linseed oil, equal parts; or creosote, 1 ounce, spirits of wine, 15 ounces, and water, 16 ounces. All the premises and articles coming in contact with the affected animals, should be thoroughly cleansed or destroyed. Of course all unaffected animals must be kept from coming in contact with affected ones. Sequestration must be strictly observed and enforced.

#### MEASLES—*rubcola*.

Measles may be defined as “a contagious febrile disease, characterized by catarrhal symptoms, and the presence of a rash upon the skin, without the disappearance of the fever.” It has often been confounded with small-pox. The term Measles has been most erroneously applied to two diseases of the pig: the one being a parasitic malady, due to the existence of *cysticercus cellulose* in the muscular system; and the other, a disease of the blood of a gangrenous character, usually associated with severe gastrointestinal derangement, and well known as “hog cholera, blue sickness,” etc. Very little is really known with regard to this malady. It is not known whether it is one and the same disease in man and these animals, or whether it is transmissible from animals of one species to those of another.

*Symptoms.*—From what has been observed of this disease, it appears to consist of irritative fever, with catarrhal symptoms,

swelling of the head and throat, constipation usually, and loss of appetite. Irregular eruptions commonly begin to appear about the second or third day, which are generally confined to the insides of the thighs and fore legs, sides and under-parts of the body and face, and consist of a perceptible elevation, the redness of which disappears on pressure. In the center of these elevations a very perceptible hardness is felt, usually after the expiration of another day, a red papulous eruption takes place from the central points of hardness, and gradually in two or three days or more the acute signs are allayed, the spots become brown colored, the cuticle peels off, and perfect subsidence usually takes place by the ninth or eleventh day. Sometimes complications occur, as diarrhœa or inflammation of the lungs; these often proving fatal. With the first symptoms of the fever there is generally cough, vomiting, redness of the eyes and flow of tears.

*Treatment.*—As soon as the disease is ascertained to be present, the sick animals should be separated from the healthy ones; and those that have been in contact with them, it would be well to place in quarantine. Strict attention should be paid to cleanliness and general comfort, and free ventilation, yet allowing a warm temperature. The bowels require to be kept open, with gentle laxatives; and mild doses of salines are useful. Feed with warm, sloppy, easily digested food, and have plenty of cold, clean water always accessible. It is not by any means a dangerous disease, if proper care is taken of the patient, and complications do not occur.

If much fever is present it would be well to give, three or four times a day as a drench, potassium-carbonate,  $\frac{1}{2}$  a drachm to 1 drachm; sodium-carbonate, 20 to 40 grains; Epsom salts, 1 to 2 ounces. Dissolve in from a half to a pint of water. These doses must be regulated according to the size of the animal. The smallest doses being suitable for pigs of about 50 lbs. weight, and the largest for animals of 200 lbs. and upwards.

#### MEASLES—*cysticercus cellulosus*.

The very inappropriate term "measles" is applied to that morbid state induced by the presence of *cysticercus cellulosus* in the muscular structure of swine. It is a purely parasitic disease, and depends for its origin on the introduction into the system of the pig, of the mature and fecundated ova of one or more species of tapeworm (*tania*). From experiments and observations that have been made, it is now a conceded fact, that the tapeworm of man



(*tænia solium*) and the tapeworm of the dog (*tænia serrata*), and probably of the wolf, will produce in the muscular system of the pig the cystic form of parasite, the cysticercus cellulossus, and in the brain of the sheep the cœnurus cerebrialis, or hydatid disease, and also, that both the cœnurus cerebrialis or hydatid of the sheep, and the cysticercus cellulossus or measles cyst of the pig, will produce tapeworm in both man and dog. The ova of the tapeworm is taken into the system of the pig by feeding or wallowing among human or canine excrement—afterwards developing—and the embryos are supposed to pierce and pass through the tissues, and are then carried through the large arterial vessels by the circulation until they reach their destination in the muscular system or structures. But it would appear that this can only happen to young animals—the parasites not being able to make their way through the tissues of adults. Pigs are said to be born measly, and it is supposed that one of the most constant means whereby the disease is propagated, is by breeding from affected parents. Pigs affected with cysticerci may become fat and never betray any sign of sickness, or the parasites may be so numerous as to cause great constitutional disturbance. The flesh after death requires very careful examination to detect the cysts or bladders containing the parasites. They are often found beneath the internal membrane of the mouth, under the tongue, inner lining of the eye-lids and the muscles below the spine within the abdomen. The disease is supposed not to be so prevalent now as formerly, owing probably to the animals not being allowed to run at large so much and get access to human excrement. And it would be a wise system of prevention if pigs were universally enclosed, and not permitted to run at large; for a very few persons affected with tapeworm discharge joints sufficient to contaminate an immense number of hogs. Each joint of a tapeworm is supposed to contain 53,000 ova or eggs, and when we consider what an immense commercial distribution pork has, as an article of diet, too great care cannot be exercised to prevent the flesh from becoming affected, thereby protecting the human family from disease.

#### TRICHINA.

The disease known in the human family by this name, is due to a small species of entoza or parasite, and appears to be generally found in the muscles of voluntary motion. Trichinæ consists of very minute cysts of an oblong figure. When taken with the food, they multiply in the intestines, and then migrate to the muscles. No symptoms have, as yet, been

observed to be pathognomonic of their presence in the muscles. It would appear, however, that they may be the cause of the morbid phenomena produced by eating the flesh of animals in which they existed, and likewise of sausage poisoning, and of the poisoning resulting from eating pork and ham affected with *cysticercus cellulosus*. There are also other varieties of *tœnia* and hydatid parasites, peculiar to other animals, as cattle and sheep, from eating the flesh of which, this, or similar diseases may be induced in the human body. Pigs, and often cattle and sheep, suffer to a great extent from hydatids of the liver. These cysticerci are apt to take up their abode also in the liver, mesentery and other internal organs of man, when consumed as food, especially when taken in a raw or underdone condition. But it is not necessary here to go into the minute detail of this subject. It is sufficient to notice that affected flesh is capable of producing this disease in the human family, and our chief aim should be, by every possible means, to prevent the spread and continuation of this disease in the animals under our care. Prevention in these cases is about all that can be done, as treatment is of little, or no avail, for it is usually not until after death and in the cutting up of the meat, that the disease is observed. If pigs were kept more enclosed, where they could have no possible access to the excrement of human beings and dogs, the disease would be much less prevalent than it is now. Though happily we are not so much troubled with it here, as in some other countries, especially in Ireland, where probably the majority of the pigs are allowed to run at large,—nearly every little cottage having one or more pigs, where they roam at will, with every facility of taking into their systems the ova of human or canine *tœnia*, and afterwards becoming the very fruitful source of affecting with trichina or tapeworm thousands of human beings who partake of the flesh, in the form of pork, ham, or sausage.

It would appear that the embryos of the ova of *tœnia* can only affect young pigs under a year old, because in older animals they cannot pierce through the tissues, as experiments performed with animals over a year old have generally failed.

In some of the sparsely populated districts, hogs might run at large without much risk of contracting disease, but in thickly populated districts, swine should be kept and bred in enclosures. This is believed to be the only sure and proper way to prevent and keep this disease in subjection.

FOOT AND MOUTH DISEASE—*epizootic apthæ.*

This is a contagious eruptive fever, affecting all warm blooded animals, and attacking man under certain circumstances, as readily as any of our domestic quadrupeds. The contagious matter is discharged in great abundance with the saliva, and from the vesicles which form in and about the mouth, also on the teats and feet. The virus adheres to the wood-work, litter, floors, roads and whatever the affected animals come in contact with, and is thence communicated to healthy animals coming after them.

*Symptoms.*—The disease is invariably characterized by a brief period of incubation, varying from twenty-four hours to three or four days. The earlier symptoms are usually ushered in by a shivering fit, succeeded by slight dulness. A vesicular eruption soon occurs in the mouth, and on the digits, and in female animals usually also on the teats. There is a tendency in young animals, when sucking the dam or drinking the milk from affected animals, to a similar eruption on the fauces and pharynx, with irritation of the larynx and of the whole digestive tract. Diarrhœa in these cases tends to exhaust the young animals, whose sore mouths prevent the taking of food. The eruption in the mouth is first indicated by smacking of the lips, and champing of the jaws, and great salivation. The pain is evidently intense. If the mouth be examined, vesicles will be found on the tongue, and on the inner surface of the lips and cheeks. In a short time the vesicles burst, and the red painful spots thus exposed are soon covered by epithelium in favorable cases, whereas in others unhealthy ulcers develope. When the eruption occurs on the feet, it is observed around the coronet, and in the inter digital space. The intense pain, inability to stand, lameness, and the swelling above the hoof, are usually the first signs noticed. The animal is inclined to lay down the greater portion of the time, and to utter screams, accompanied with much champing of the jaws, and salivation, if compelled to move. There is a great tendency to sloughing of the hoofs, and pregnant sows frequently abort; emaciation occurs, the poor sufferer being unable to take food, owing to the intense pain in the mouth. There is also more or less constitutional fever, often attended by a cough. In favorable cases all symptoms of fever usually subside by the sixth day, the appetite is restored, and convalescence well established by the ninth or tenth day. In cases of a fatal termination, the fever runs high, ulceration spreads, the animal becomes exhausted,

the hoofs slough off, the blood becomes impure, and death generally occurs about the ninth or tenth day. In the majority of cases the disease is mild, though it is sometimes very virulent.

*Treatment.*—Although Epizootic Aphtha is not often a fatal disease, still attention must be paid to proper treatment. The use of laxatives and salines must be resorted to, and the affected parts should be dressed with chlorine water, or carbolic acid, one part to twenty or forty parts of water,—or other antiseptic and healing dressings. It is hardly necessary to attempt to feed when the animals are suffering from this disease, except allowing them their slops or gruel. The preventive measures should be strict isolation of the affected animals from the healthy ones, the placing of suspected ones in quarantine, and the free use of disinfectants about the premises.

Keep all the suppurating surfaces clean, especially about the hoofs;—might use some of the following applications; as chloride of zinc, 2 drachms, tincture of myrrh, 1 ounce and water, 1 pint; or carbolic acid, 1 ounce, glycerine, 12 ounces, tincture of myrrh, 1 ounce, water, 1 pint; or Condy's Fluid, 1 teacup-full, water, 1 pint. Attend well to ventilation and cleanliness, and to the general comfort. The Sulphite or hypo-sulphite of Soda administered in  $\frac{1}{2}$  to 1 drachm doses, three or four times a day, appears to act very beneficially. It is also a good antiseptic and healing gargle for the mouth.

#### CARBUNCULAR QUINCY—*cynanche tonsillaris*.

This is a disease somewhat similar to malignant sore throat, but chiefly manifesting itself on one side of the neck, and implicating the tonsil of that side.

*Symptoms.*—The bristles on the affected side are erected. There may be twelve or fifteen of them, sticking out, and firm, and if they be pulled, or even touched, the animal screams with pain. The surface over which they are implanted is depressed or cup-shaped, and of a dark bluish color. The animal becomes exceedingly dull, listless, deaf, and is continually lying; there is no desire to take any food, and if made to rise and move, it is very evident that the body is supported with difficulty by the extremities; the breathing becomes laborious, the expired air hot and fetid; the mouth hot and foaming, and the lower jaw is constantly moved from right to left, or left to right; the eyes are bloodshot; there is either extreme of constipation or diarrhœa, and the evacuation of fœces seems to afford some momentary relief. The animal usually

becomes comatose, and may be asphyxiated in from twenty-four to forty-eight hours, or linger on and die in convulsive fits, about the seventh, eighth or ninth day.

*Post-mortem Appearances.*—Evidence of acute inflammation of the larynx and pharynx, and especially of the tonsil on one side. The other lesions are similar to those occurring in any animal that dies of anthrax or from an acute inflammatory affection. Quinsy in the pig is often enzootic and epizootic, and some authorities assert that it is always contagious. The disorder is much favored by foul styes, bad food and exposure.

*Treatment.*—The affected animals should be instantly separated from the healthy ones, and, in the first stages, the affected tissues should, if possible, be either extirpated freely with the knife, or very deeply cauterized. Cold water with vinegar and nitre in it, should be allowed to the animal. Gargling the throat frequently with chlorine water is beneficial. Administer an emetic, such as white hellebore, 10 grains, or tartar emetic, 5 to 10 grains, or sulphite of zinc, 10 to 15 grains. Afterwards a brisk purgative—say Epsom salts, 3 to 6 ounces—if constipation is present, persisting in the free use of injections. Also give stimulants to support the animal through the attack. These constitute about the chief and only means that can be employed. Emetics in moderate doses—such as tartar emetic, 3 grains, ipecacuanha, 4 grains—given frequently, are often very beneficial. All these medicines must be given in the form of a drench. In gargling the throat the fluid must be thrown in from a small syringe. This can easily be done when the mouth is opened, either by an assistant's hands, or by the insertion of a stick or other hard suitable instrument.

#### MALIGNANT SORE THROAT—*œdema glottidis*.

This disease consists of a rapid effusion and exudation amongst the tissues comprising and surrounding the laryngeal opening and glottis, attended by great difficulty of breathing, in which life is jeopardized by interfering with respiration. From what is known concerning it, most authorities agree in classing it among the contagious diseases; and from the suddenness of its attack, and the rapidity with which it runs its course, it generally terminates fatally.

*Symptoms.*—This disease with the pig is characterized by febrile symptoms, dullness, stiff gait, and loss of appetite, quickly followed by difficult breathing, swelling and soreness of the throat and tongue, gasping for breath, cough, heat of expired air, and great

heat of back, bluish color of the buccal membranes, difficult deglutition, and symptoms of suffocation. If the animal is not too fat, externally and along the course of the trachea, a hard inflammatory swelling may be traced, often extending down to the fore extremities; the breath is often extremely offensive, desquamation of the epithelium occurs within the mouth, and there is great tendency to gangrene. The disease may terminate fatally in from one to three days.

*Post-mortem Appearances:*—Larynx and pharynx in a state of inflammation, and ulcerated perhaps as well, and covered with putrid discharges; root of the tongue ulcerated, and considerable enlargement of the salivary glands and surrounding tissues. In addition to this the organs of the body generally are dark colored, from the accumulation of dark blood in the blood vessels.

*Treatment.*—This is, in the majority of cases, most unsatisfactory, for generally the poor sufferer succumbs to a disease which we appear to have no power to arrest, much less to cure. Happily it is of rare occurrence. In the early stage an active emetic might be given, such as tartar emetic 4 grains, ipecacuanha 6 grains, white bellebore 6 grains. Give either in food, or drench very carefully. If the animal will drink anything, or will eat a little, a purgative should be given, as, castor oil, 2 to 4 ounces, or raw linseed oil, 1 pint, or aloe, 1 to 2 drachms in solution. If the animal will drink water, dissolve in it a little hydro-chlorate of ammonia and nitre, or sulphite or hypo-sulphite of sodium, 1 drachm, and give several times daily. The application to the sides of the neck of rags wrung out of boiling water, or other active vesicant, would be beneficial. Also, as constipation is generally present, frequent injections may be beneficial.

In other animals, when the difficulty of breathing is great, tracheotomy might be performed; but in the pig the operation is not practicable, it being far easier performed in theory than in practice.

Preventive measures should be adopted in preference to curative. Great care should be exercised in handling or cutting the diseased flesh, as bad results might occur from having abrasions or cuts upon the hands. Other animals should not be allowed to eat any of the blood or flesh of diseased animals, and the carcasses of all that die from this disease should be buried deep, and as soon after death as possible.

PLEURO-PNEUMONIA. (*See Fig. 4.*)

This disease may be divided into two forms. One, sporadic or enzootic pleuro-pneumonia, which occurs spontaneously, and is influenced by climate, season, and location. It is not usually fatal, and is generally considered not to be propagated by contagion, but common to all animals. The other, epizootic pleuro-pneumonia, is a malignant form of inflammation of the lungs, of an eminently contagious character, and heretofore supposed to be peculiar to the ox species alone.

That this latter form has its origin spontaneously, and afterwards spreads by contagion and infection, there can be no doubt whatever; but in an essay like the present, it would be impossible to go into a minute detail of these diseases. Very able writers have given much careful study and attention to the subject, and to their works we must direct our attention for exhaustive information respecting the history, origin and fatality of this—especially the latter form—devastating disease. By every means in our power, we should avoid, by preventive measures, the introduction of affected animals among healthy ones, because treatment in contagious pleuro-pneumonia is a miserable failure. Happily our country has not suffered from its devastating ravages as have most of the older European countries.

Sporadic pleuro-pneumonia is in the majority of cases amenable to treatment; but whether after a certain time, and under certain circumstances, it does, or does not, become a contagious affection, has not been definitely determined. A paper read by the author at one of the weekly meetings of the Ontario Veterinary College, on pleuro-pneumonia in pigs, is here reproduced.

About the early part of June, 1875, it was reported that some disease had attacked the herd of hogs of Mr. W. R. Shearer, at his cheese factory at Rockford, about ten miles from Simcoe, and that they were dying off in great numbers.

Shortly afterwards Mr. Shearer called on Mr. John F. Smith, V. S., and wished him to visit the hogs, and see if anything could be done for them. The next day I accompanied him to Rockford.

Mr. Shearer is the proprietor of the Rockford and Villa Nova cheese factories, and according to his account, every spring when cheese making commences, he buys up a sufficient number of pigs to consume the whey during the summer; and later in the season a certain amount of bran and chop stuff is added to the whey, so that by fall the hogs are fat, and are then disposed of.

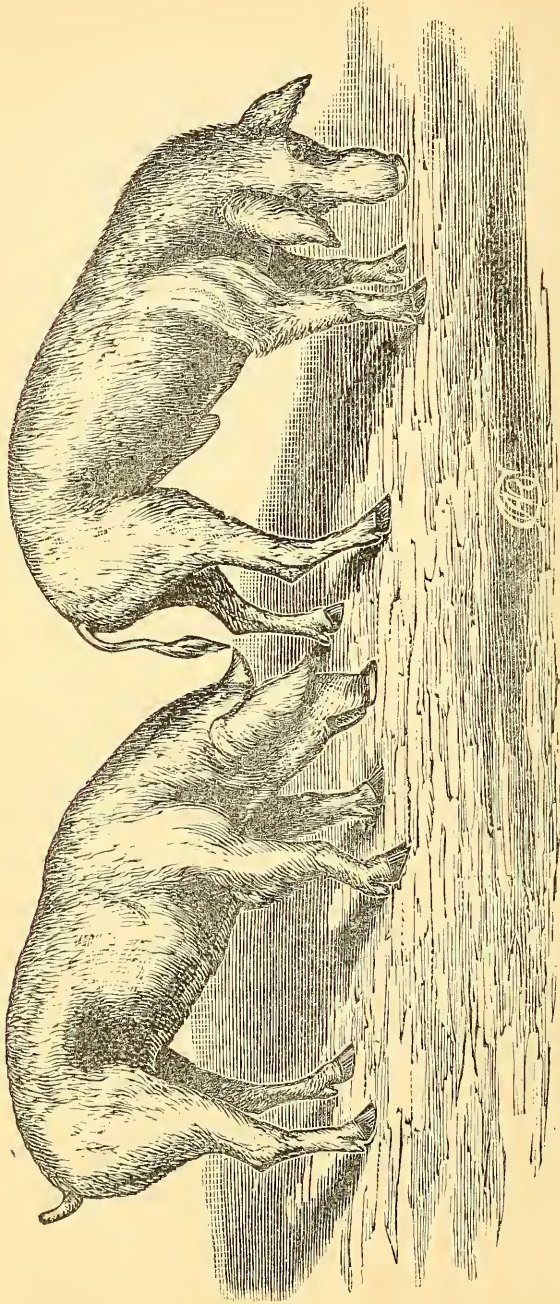


Fig. 4—Pleuro-pneumonia—Animals in the convalescent stage.



The history of these pigs, so far as known, is as follows: Mr. Shearer, through an agent, bought two hundred green pigs, purporting to come from Wisconsin, U. S., to be shipped from Chicago to Brantford, Ontario. I think this was about the latter part of April. On arriving at Brantford, they were driven the same day to Rockford, a distance of fifteen miles, and left over night in a low, damp, unsheltered fallow field, and without anything to eat, the weather at the time being quite inclement. The attendant stated that the next morning they appeared to suffer very much from cold and exposure, and on peas being thrown down to them, they took little or no notice of them. Whether this was from sickness, or from their not being well-posted in peas, it would be rather difficult to explain; but from their being western hogs, perhaps if corn had been offered to them instead, they might have indulged greedily enough.

I might here mention that in previous years Mr. Shearer had always procured his pigs in Canada, and had always had very good success with them.

The attendant said that although they did not appear to care much for the peas they ate large quantities of earth, or rather clay, for the soil is very stiff clay. That was correct, for on examining some dried feces that were shown us, it appeared to consist exclusively of earthy matter like hard-baked clay.

They took readily enough to the whey feed, and after a few days all seemed to be doing first-rate, and continued to do so for a few weeks, with the exception that some of them were troubled with a cough; but in a very short time afterwards worse symptoms appeared. They got off their feed, diarrhœa set in, or in some cases very obstinate constipation, difficult breathing, and vomiting; and when the warm weather came, they commenced to die off very rapidly; so that the attendant's duties of feeding were somewhat diverted, and grave digging and burying soon claimed the greatest share of his time. By this time Mr. Shearer was greatly alarmed about his loss, and also there was considerable excitement in the surrounding neighborhood; the people thinking that some very serious epizootic disease among the pigs was breaking out, which might spread over the country. In his dilemma Mr. Shearer had called in the services of two or three different parties to treat the hogs, but without deriving any benefit from them, as they continued to die off just the same. At this time very nearly half of his herd of two hundred had died, and a considerable number were still sick. Of course he naturally felt very much

discouraged, but thought he would again try if anything could be done to arrest the fatality, and save some of the remainder. He then applied to Mr. Smith, as before stated, and hence the cause of our visit.

We found the animals, that is the affected ones, presenting anything but a healthy appearance. In the center of a field to which they had access, was the remains of an old straw stack, and on this the affected pigs persistently huddled together, endeavoring to bury themselves in the litter, and dying there. This appeared a very favorite place with them, and was a regular hot-bed of infection. Others would get off by themselves and lie and die in fence corners. The remains of the straw stack was condemned and fired at once, after of course kicking out the lodgers.

The following symptoms were observable. When disturbed a very distressing, dry, hacking cough came on with some vomiting, rigors and dullness, and great debility. Most of the animals presented a very emaciated appearance, and tucked up about the abdomen. Some were constipated, others had diarrhœa, and in some a red or purplish appearance showed on the under parts of the belly, or rather between the fore legs and neck, and some appeared unusually swollen or enlarged about the lower jaw and throat. This was stated to be particularly noticeable in early stages.

There being no dead hogs above ground very near us, and as it was getting near evening, we did not make a *post-mortem* examination, but from the general appearance of the animals and their history, Mr. Smith was led to think it was what is generally known as hog cholera—*anthrax*—but did not like to give a decided opinion until he had seen them again, and made a more careful examination.

The next day we went again, and opened two or three dead hogs, and also killed one of the affected ones, and altogether, made a very careful *post-mortem* examination. In all we found the greater portion of the lungs more or less congested, and hepatized very badly in some, and involving both the lung substance and pleura. In most of them there was considerable pus in the lung, and in some abscesses ulcerating completely through the substance, also considerable quantity of effusion present, and the lung was also more or less attached to the side in places. All the other organs were normal. After this, Mr. Smith had no hesitation in pronouncing it a clear case of Pleuro-pneumonia, in which decision I also coincided.

That day we administered medicine to about thirty hogs, separated all that appeared affected, and directed them to be kept apart.

The distance from Simcoe being too great to attend them daily, or as often and regularly as desirable, at the request of Mr. Shearer, and for the sake of the practice, I took charge of them and stayed with them some time. They were first divided into several lots, according to their stages. The healthy ones were got into a large meadow, sheltered on two sides by woods, and having a stream of water in it, and plenty of grass. This lot would be taken up at first once a day, after a time twice, to get whey and meal with their medicine in it. Most of the others, the affected ones, had to be drenched, and these were in small pens. I might here remark that to write or talk about drenching pigs and doing it, are two very different things, especially a lot of large, coarse, half-wild, western hogs; and anybody not accustomed to handling pigs, will soon find that it is anything but an agreeable or easy task.

When first taken charge of, one hundred and fourteen had already died, six were lost after that, making a total of one hundred and twenty dead, out of a herd of two hundred. I think we treated them for about five weeks.

I will now endeavor to give the general symptoms that came under my observations, viz: rigors, dullness, loss of appetite—or depraved appetite, often eating each other's excrement—general debility; respiration much affected; a quick spasmodic labored breathing, with hard, dry, hacking cough—and in some cases swelling about the lower jaw—often coughing up through one or both nostrils, mucous or coagulated blood, and sometimes lung substance; also either constipation or diarrhœa. When the latter occurred the fœces were usually black and extremely fetid. Towards the last stages the animals become emaciated, and in walking show staggering gait, often crossing the hind legs, and sometimes falling. They are inclined to lie in moist, damp places. It was in the early stages of the disease that we usually observed loss of appetite, rigors, dullness, cough, and the swelling at the lower jaw and throat. I can say but little about the pulse, for taking the pulse in a hog is much easier talked about than done.

The general treatment pursued was about as follows, though somewhat modified to suit different patients: In the early stages when breathing was very bad, Fleming's tincture of aconite was given, eight or ten drops, till as many as twenty, and to some even forty-five drops were given with good results, also nitrate of

potash, in about 1 drachm doses. To a fair sized hog would be given gentian 1 drachm, ginger 1 drachm, and about every alternate day, either sulphur or magnesia sulphate, from 1 to 2 ounces. In constipation, purgatives were given in greater or less quantity until the desired effect was produced. After the first stages were passed, sulphate of iron was given,  $\frac{1}{2}$  drachm daily. After a time, every day or so, great benefits were found from strong counter irritants, composed of mustard, turpentine and liquid ammonia, applied behind the shoulders. If there was much coarse hair, it was cut off, and a blister applied with a stick once or twice a day. If the animal was very fat, little or no effect was produced; but if only moderately so, the animal, after two or three applications, would cry with pain.

Regarding the cause, Mr. Smith attributed it to the fatigue and alternate chills and heating from being crowded in the trucks, and to the drive from Brantford, and the after exposure. Probably they might have gone a considerable time without food or water. All these circumstances might have so weakened and debilitated the system, as to have rendered the hogs predisposed to take on pleuro-pneumonia when exposed to certain exciting causes.

I might here state that several sows gave birth to dead fœtuses, only partially developed, dried and shriveled up, but at the same time and in the same litter with live and properly developed pigs. No account was taken of these litters, as it is noticed that the weny does not favor the production of milk sufficient to rear the progeny. They are generally knocked on the head and the crowd allowed to eat them, which they will readily do when dead, but they will never, as a rule, kill or interfere with a live new-born pig, all the time it can struggle about and cry; though a sow will often kill and devour her own young ones. The dead and partly formed fœtuses that came with the live and well developed litter, might be attributed to the abuse of the sow's system from the above mentioned causes.

I opened all the carcasses that died after I took charge of them, and in all found the *post-mortem* appearance the same as before mentioned; one pair of lungs weighed five pounds.

I also wrote to a party in Wisconsin to ascertain if any hog disease was present there, but he answered in the negative.

The rest of the herd of eighty hogs did well, and were well fattened by fall. Even some of the worse patients caught up and made heavy hogs.

There were a great many well-bred hogs in the herd, principally Berkshires, and these appeared to suffer most, to be earlier affected, and to succumb to the disease sooner than the coarse bred ones—they were also in better condition than the latter.

HOG CHOLERA.—*anthrax, typhus, cyanosis, erysipelas, carbunculosum, gastro-enteritis.* (See Fig. 5.)

This disease is known by the vernacular or common names of distemper, red soldier, red disease, blue sickness, blue disease, hog cholera and measles. The latter name very wrongly applied. It is a subject respecting which there is a great diversity of opinion. Some regarding it as *typhus*, others as *anthrax* hence the various appellations. It is undoubtedly a blood disease.

It is a malady that appears first to affect the digestive organs, and then the blood undergoes changes favorable to transudations, which occur in different parts of the body. By most authorities it is considered contagious.

*Symptoms.*—The premonitory signs occur late, are very transient, and are seldom observed; usually the death of one or more pigs, under mysterious circumstances, first arrests attention. Some may then be noticed to be dull, not to seek for food or water, but to creep beneath the straw, or any dark place, seeking quiet and isolation from the rest, carrying the head low and ears drooping.

Signs of abdominal pains are often well marked, and there is a disposition to lie on the belly with fore feet outstretched.

In some cases there is great cerebral disturbance, and in others stupor, so that they may be either wild and frantic and utter cries, or else quite unconscious. Vomiting frequently occurs, the retching being often quite violent, and food may be vomited, or mucous and bile only.

In the early stages the fœces are of normal consistence, and the urine pale. After a time diarrhœa sets in, and the excrement is then dark or black colored, and extremely offensive. There is a singular jerking or spasmodic breathing, complicated by congestion of the lungs, and usually a painful irritating cough, which increases the general weakness. Great weakness of the hind parts is often noticed from the commencement of the attack, which increases as the disease advances. The animal staggers when moving about, its limbs cross each other, and often at last are perfectly paralyzed. It is then often found that the creature cannot scream, and there is present a subdued hacking cough.

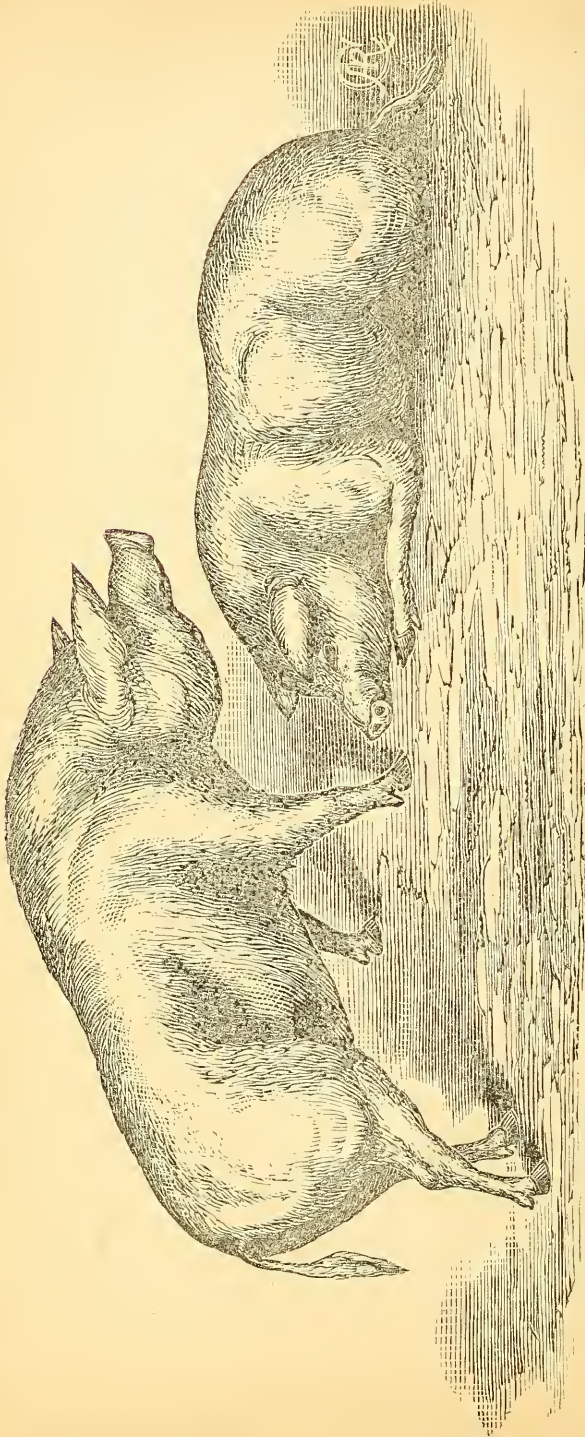


Fig. 5—Hog Cholera—*Anthrax*.

The blood does not flow freely if a vein be opened, and ecchymosis occurs over the whole body. The discoloration of the skin and mucous membranes—suggesting so many names for the disease—commences some time before death, and occurs especially on the belly, inside of the thighs and fore legs, and behind the ears. Where the skin is thinnest it is especially noticeable. The red or purplish color disappears wherever the skin is pressed, except in parts where any extravasation of blood has occurred. In rapid cases, the mucous membrane is of a bluish red color, and in chronic cases it is of a dirty yellow color. The temperature of the body is at first increased, but afterwards it is lowered. Slight forms now and then appear, which consist of discoloration of the skin and loss of appetite, extending over a few days, when recovery follows; but in severe cases, the animals generally succumb in a very short space of time from the commencement of the attack.

*Post-mortem Appearances.*—The skin is black and blue, as if the animal had been bruised during life. The capillaries and moderate sized veins of the skin and sub-cutaneous tissue are dark colored, and gorged with blood. A yellow serum is apt to accumulate wherever there is ramified redness. The serous and mucous membranes are studded with ecchymosis, which are most developed as a rule in the thoracic organs. Impaction of solid material in the intestines is frequently observed. The liver and spleen are usually congested and of a dark color, and the parenchyma of the liver more particularly is soft. The lungs are often much congested. The blood is dark, seems fluid, and coagulates very slowly.

*Treatment.*—When the disease breaks out, keep the animals on low diet, and promote action of the bowels by clysters; and give then an emetic—white hellebore, 5 to 10 grains, or sulphate of zinc, 5 to 15 grains, followed by purgatives. The following drench would be suitable: Epsom salts, 2 to 4 ounces; sulphur, 1 to 2 ounces; and gentian and ginger in powder, 1 to 2 drachms, in about one or two pints of water. The doses must be regulated according to the size of the animal. The medicine should be given before diarrhœa sets in. Moderate exercise, fresh air, and syringing or sluicing the animal over with cold water, are measures to be recommended.

Preventive measures should consist of cautious feeding in young and growing animals, wholesome vegetable diet, and a sparing allowance of only well cooked animal food, strict attention to

cleanliness, and separation of the affected from the healthy animals. The sulphite or hypo-sulphite of sodium, in about 1 to 2 drachm doses, five or six times a day, would act very well. It could be given in a little feed if the animal would take any.

#### INVERSION OF THE VAGINA AND UTERIS

Is occasionally met with in the pig. The causes and treatment are very similar to *prolapsus ani*, and the same treatment should be adopted; only that it is more dangerous to excise either the vagina or uterus than the rectum; therefore it is better, if possible, to well cleanse and return them. After being returned, it is often advisable, and indeed necessary, to secure a truss over the part, to prevent the possibility of its becoming again inverted. This is best accomplished by using a truss cut out of leather, an old boot top will do in case of emergency. A strap like a surcingle is passed round the body behind the fore-legs, to which is attached four cords corresponding to four outer holes in the corners of the truss, to keep it in position. The two upper cords pass along either side of the spine, while the two lower ones pass down between the hind legs, and along either side of the belly. When secured in this way for a few days, the operation is generally attended with success, the parts soon returning to their normal condition.

It may be necessary to have resource to the remedies directed for *prolapsus ani*; also, the animal had better be separated from others, and kept very quiet for several days. It would also be better, if possible, to place the patient in a narrow compartment, so that it could not turn round, and to keep the hind parts raised higher than the fore.

#### PARTURIENT PARALYSIS.

This affection occasionally occurs to the sow. Exposure, especially if the animal is in a too plethoric condition at the time of parturition, is a frequent cause.

*Treatment.*—Her young should be kept from her, or only allowed to nurse at certain times, though generally the milk dries up. Give a good purgative, so as to have the desired effect of moving the bowels; then give salines, and if there be much fever, give sedatives; or if the patient be very weak, give stimulants. Afterwards give nerve stimulants, as nux vomica, 5 to 20 grains, twice daily, until some of their physiological or therapeutical effects are produced. Attend well to general comfort.



## FRACTURES IN SWINE

Occasionally occur, but in this animal little can be done in the way of treatment. If simple, they had better be left entirely for nature to effect a cure; but if serious, and the animal is in fit condition, it had better be slaughtered at once for food. From their obstinate, intractable nature very little can be done in the way of treatment.

## WOUNDS.

These may be divided into incised, lacerated, punctured and contused. From wounds the pig appears to be particularly exempt, as compared with other and especially the larger animals. This may be owing to the short life usually allotted him, his small size, low form, peculiar habits, and his being also generally pretty well covered with fat—thus protecting to a great extent all vital and important organs. Where pigs are kept with cattle, they are sometimes punctured or gored by the horns of the latter. In which case the abdomen sometimes becomes lacerated, allowing part of the intestine to protrude; this, of course, is often attended with dangerous consequences.

*Treatment.*—This should be attended to as soon as possible, not allowing the protruding intestine to get cold. If the intestine is not broken, treatment is usually successful. First cleanse the part if dirty, using water about blood warm; then carefully return, and bring the abdominal walls together, and secure by a few stitches, leaving long ends, and allowing these to hang out of the wound; next close the skin by stitches, but leave sufficient opening at the most pendent part, to allow of the free exit of any matter that may accumulate. Of course the animal must be held down by assistants during the operation. Afterwards keep the bowels open by the free use of injections of tepid water. Endeavor to prevent constipation by a laxative and cool diet, such as cooked vegetables, gruel, or the like. It is not advisable to give any drastic purgatives; but if necessary to resort to medicines to relax the bowels, use castor or raw linseed oil, repeated every few hours until the desired effect is produced. If in warm weather, and there is much fever or heat about the injured parts, it would be well to shower or apply cold water, to which might be added a little laudanum, and if the discharge is very offensive, and there appears any tendency to take on a gangrenous character, a little carbolic acid, or chloride of lime, or permanganate of potash should be added to the water. A small quantity might be injected into the wound as well as bathing

it; but care must be taken not to inject much fluid into the abdominal cavity, on account of the danger to be apprehended from inflammation of the peritoneum or caul.

#### THE ADMINISTRATION OF MEDICINES TO PIGS.

A few remarks on this subject might not be out of place in this work. As anyone acquainted with these animals, will readily admit, they are not the most agreeable or tractable of quadrupeds; especially when anything is necessary to be done for or with them that does not exactly suit their will or pleasure. On such occasions they often display an amount of stubbornness, obstinacy, perverseness and pig-headedness in general, most trying to the patience, especially if one has not a rather large share of that virtue. But it will not be necessary to discuss why a pig is possessed of these qualifications in excess generally of other animals; it is simply sufficient to know that he does possess them; and, therefore, in dealing with this animal, with reason to aid us, we must endeavor to overcome him and his peculiarities in the best and easiest way, consistent with kindness and humanity, so as to avoid any wanton cruelty or suffering, but at the same time attain our object.

In administering medicines to swine, it is by far the best way, if it can be accomplished, to mix and give it in their food; but this cannot always be done. The animal may not be able, either from weakness or other causes, to take it, or the medicine may be of a character not adapted to be given in that form, for either in taste or smell, it may communicate to the food such an unpleasantness that the animal will positively refuse to touch it, although it might readily take food if the medicine was not mixed with it, for the senses of smell and taste, especially the former, are well developed in the hog.

The medicines best adapted to be mixed with food are sulphur, Epsom salts, castor oil, raw linseed oil, the different preparations of potash, sulphite or hypo-sulphite of soda, gentian, ginger, etc. When medicines are given in food, the latter should be less in quantity than that usually given, but better in quality, so as to disguise the taste and smell of the drugs, and also to insure its being all taken. Afterwards, if necessary, and the animal requires more food, it may be given; but if the taste and smell of the medicine are not very well disguised, and the food nice, a sick pig will rarely touch it.

Medicines of small bulk, and emetics, or in all cases where a speedy or certain effect is desired, are best given in solution as a drench.

When it is not desirable or possible to administer medicines mixed with the food, drenching must be resorted to. Persons not accustomed to handling hogs will generally have their patience sorely tried at first, and find it very disagreeable and hard work; but like everything else, after a little practice, it will become a much easier task.

To drench small pigs, let an assistant seize the animal by the ears, and slightly raise it, keeping the body secured between the legs. (See Fig. 6.) It is well also to get them into a small compartment; they are then easier caught and handled.

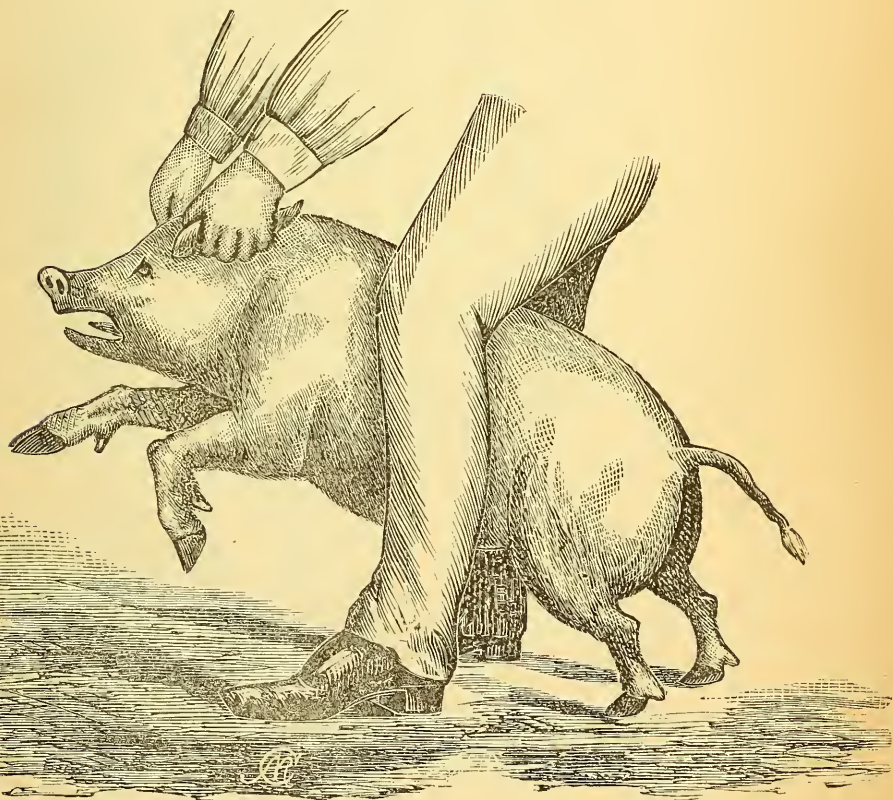


Fig. 6.

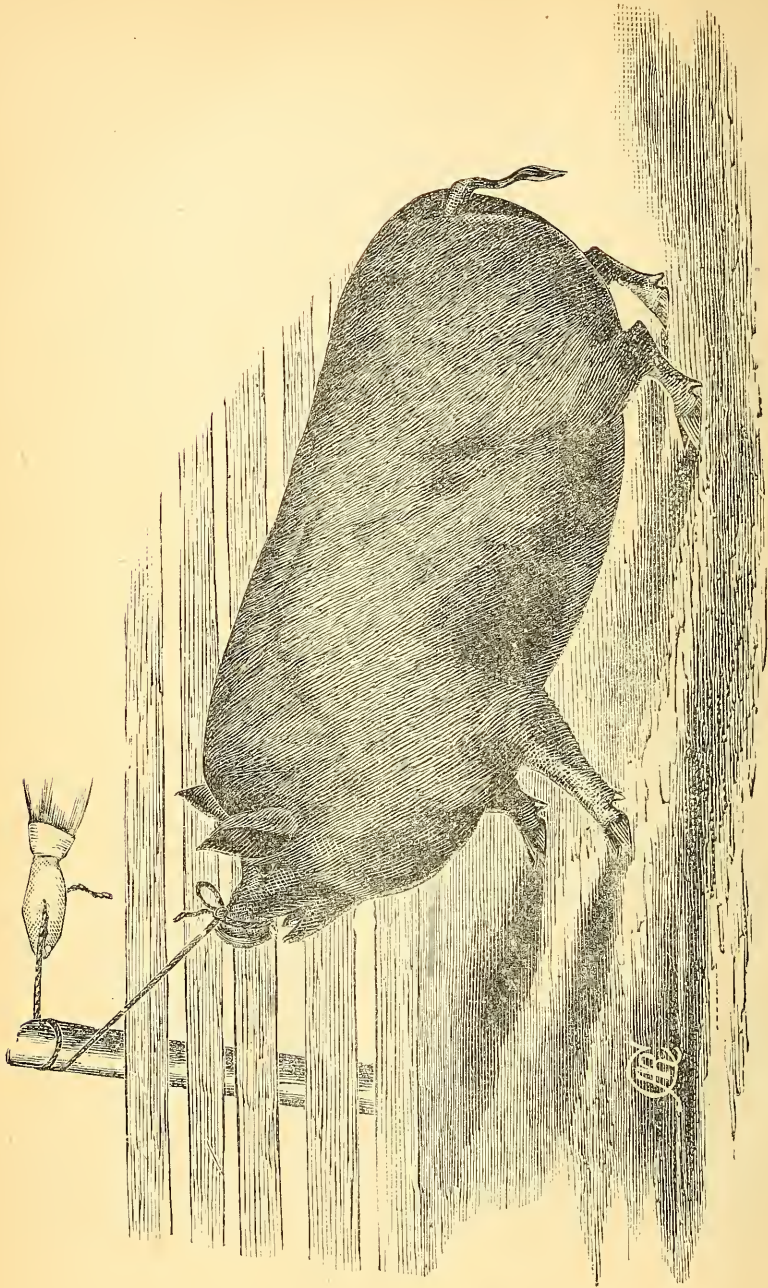


Fig. 7.

To drench a large hog, take a cord, tie a running noose at one end, slip it into his mouth and back of the tusches, or canine teeth. Secure the other end to a post, fence-rail, staple, or any firm and convenient place, or let an assistant hold the end. When a hog is secured in this way, he will *always pull back* (see Fig. 7), thus keeping the cord tight, and it is then not difficult to drench him. Take a piece of hard wood and shape it into a stick, flat at one end, and about an inch and a half wide, stand on the right side of the pig, reach over and insert the flat end between the teeth on the left side of the mouth, and then, by turning the stick edgewise, the mouth will be opened sufficiently wide to admit of the introduction of a portion of the neck of a bottle, and also to prevent the latter being broken by the teeth. Insert the bottle on the right side of the mouth, but be careful to allow only a *small quantity* of the contents to enter the mouth at one time until swallowed; then there is no danger to be apprehended from choking. On no account allow the whole contents of the bottle to empty itself into the mouth and throat in *one continuous stream*; otherwise strangulation will be the inevitable result.

The prescriptions given in this work are mostly from the smallest to the largest doses, being adapted to small or large animals, say from fifty to two hundred and fifty pounds. It must be left to the operator's discretion and judgment to suit individual case. If the desired effect of any medicine is not produced after one or two doses, it should be given in smaller quantities and at shorter intervals until the effect is obtained.

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## GLOSSARY.

*Anus.*—Circular opening, situate at the posterior extremity of the rectum.

*Antiseptic.*—Opposed to putrefaction.

*Asphyxia.*—Suspended animation, produced by non-conversion of the venous blood in the lungs into arterial.

*Buccal Membranes.*—The mucous membrane which lines the interior of the mouth.

*Clyster.*—A liquid thrown into the large intestines *per anum* by means, of a syringe or other appliance.

*Congenital.*—Diseases which new born animals have at birth; faulty conformation.

*Coma.*—Stupor; disposition to sleep.

*Convalescence.*—The time which elapses between the termination of a disease and complete restoration of strength.

*Contagion.*—The transmission of a disease from one animal to another, by direct or indirect contact.

*Digits.*—Fingers; the claws or cleft foot of an animal.

- Disinfectants*.—Agents capable of neutralizing morbid effluvia.
- Deglutition*.—The act or power of swallowing.
- Desquamation*.—Separation of the scurf skin in the form of scales.
- Drastic*.—Purgative medicines which operate powerfully.
- Enema*.—See Clyster.
- Emetic*.—A substance capable of producing vomiting.
- Excrement*.—Fecal evacuations; superfluous matter expelled from the body; dung.
- Echymosis*.—A livid black or golden spot, produced by blood effused into the connective tissue.
- Epizootic*.—Due to atmospheric influence, and attacking a number of individuals at the same time, without respect to locality.
- Enzootic*.—Applied to diseases peculiar to a district or locality.
- Emaciation*.—Poverty; leanness.
- Excise*.—To cut off; surgical operation to remove a part with a cutting instrument.
- Epithelium*.—The layer of cells on the surface of mucous and serous membranes.
- Entozoa*.—Worms or parasites that live in the animal body.
- Fæces*.—See excrement.
- Fauces*.—The passage leading from the back part of the mouth to the pharynx.
- Glottis*.—The oblong aperture between the vocal cords of the larynx, and through which the air passes to the lungs.
- Gangrene*.—Partial death of an organ or part; mortification.
- Isolation*.—To detach; to have no communication.
- Infection*.—See Contagion.
- Larynx*.—The apparatus of voice, situated at the top of the trachea or wind-pipe.
- Laxative*.—A medicine which gently opens the bowels.
- Manipulation*.—A term applied to the manual examination; treatment or working of parts.
- Malignant*.—A term applied to any disease having symptoms so aggravated as to threaten the destruction of the patient; a disease of a very serious character, although it may be mild in appearance.
- Omentum*.—Folds of serous membrane passing from one abdominal organ to another; caul.
- Organic*.—Relating to an organ or organs, and to beings possessed of organs.
- Plethoric*.—Repletion; full of blood; augmentation of the red corpuscles in the blood.
- Pharynx*.—Back part of the mouth; upper part of the gullet.
- Pathognomonic*.—A characteristic symptom of a disease.
- Quarantine*.—The time during which men or animals coming from a country where any contagious disease exists, are kept from intercourse with the inhabitants of the country.
- Rectum*.—The last or straight intestine, or gut.
- Suture*.—In surgery is an operation which consists of stitching the lips of a wound to procure their union.
- Spinctor Ani*.—The annular muscle which constricts or closes the anal opening.
- Serum*.—The watery portion of animal fluids.
- Suppuration*.—The formation of pus or matter.
- Salivation*.—A superabundant secretion of saliva.
- Sloughing*.—Separation of an unhealthy from a healthy part.
- Saline*.—That which contains a salt, or has the properties of a salt.
- Sporadic*.—Attacking a few at a time; a disease independent of epidemic or contagious influences.
- Spontaneously*.—Acting or growing of itself, or of its own will.
- Transudation*.—The passage of fluid through the tissue of any organ.
- Therapeutical*.—Relating to that part of medicine the object of which is the treatment of disease.
- Tracheotomy*.—A surgical operation which consists of making an opening into the trachea.
- Topically*.—Any local outward application or remedy.
- Vermifuge*.—A remedy which destroys or expels worms.
- Vesicle*.—Little air bladder; blister; small sub-membraneous cavity.
- Vesicant*.—A blistering substance.
- Virulent*.—Very baneful; poisonous.

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 PHILLIPS, GEO. H., Lebanon, Ky.  
 PHILLIPS, R. M., Jacksonville, Ill.  
 PHILLIPS & ROGERS, Lebanon, Ky.  
 PICKERING, H. L., Lamoille, Ill.  
 PICKRELL, JESSE A., Wheatfield, Ill.  
 PICKRELL, J. H., Harristown, Ill.  
 PICKRELL, W. & W., Mechanicsburg, Ill.  
 PIERCE, D. S., Newark, Mo.  
 PIERSON, R. R., East Bethany, N. Y.  
 POE, WM. C., Hooversville, Md.  
 POLLARD, J. H., Springfield, Ill.  
 POPE, JACOB, Lamoille, Ill.  
 PRATHER, S. E., Sherman, Ill.  
 PRATT, G. JULIAN, Waynesboro, Va.  
 PRINE, M. K. & SON, Oskaloosa, Iowa.  
 PRYOR, SAM'L M. & SON, Paris, Ky.  
 RANKIN, ADAM, Independence, Mo.  
 RAYNOLDS, ISAAC M., Sherman, Ill.  
 READER, J. K., Auburn, Ill.  
 READ, GEO., Belvidere, Ill.  
 REEVE, CHAS., Minneapolis, Minn.  
 REDDICK, WILLIAM, Ottawa, Ill.  
 REYNOLDS, C. W., Grundy Center, Iowa.  
 RHODES, T. F., Cammillus, N. Y.  
 RICE, HENRY, Lawndale, Ill.  
 RICE, JOHN H., Keithsburgh, Ill.  
 RICHARDSON, W. D., Springfield, Ill.  
 RICHARDS, RICHARD, Racine, Wis.  
 RICHEY, N., Tonica Ill.  
 RIDER, JOHN, Sacramento City, Cal.  
 RILEY, JAMES, Thorntown, Ind.  
 RINGHOUSE, HENRY, Bloomington, Ill.  
 RIX, GEO., Topeka, Kan.  
 ROACH, GEO., Hamilton, Ont., Canada.  
 ROACH, J. E., Lincoln, Ill.  
 ROBERTS, ISAAC M., Bethany, Mo.  
 ROBERTSON, WESLEY, Jacksonville, Ill.  
 ROGERS, JOB, Clayton, Ind.  
 ROGERS, S., Prairie Center, Kan.  
 ROLLINS, A. W., Manhattan, Kan.  
 ROON, CYRUS, Plymouth, Ohio.  
 ROWE, A. P., Fredericksburg, Va.  
 ROWETT, R. & J., Carlinville, Ill.  
 SAMUELS, T. W. & SONS, Deatsville, Ky.  
 SAMUELS, W. T., Frankfort, Ky.  
 SANFORD, H. L., Elkhart, Ill.  
 SANNER, WALTER W., Springfield, Ill.  
 SAUM, GEO. W., Onarga, Ill.  
 SCHNEELY, M. N., Fairview, Md.  
 SCOTT, H. B., Sedalia, Mo.  
 SCOTT, J. M., Belleville, Ill.  
 SCOTT, M. C., Montgomery, Ala.  
 SCOTT, M. F., Mechanicsburg, Ill.  
 SEARS, H., Garden Prairie, Ill.  
 SHATTUCK, L. E., Albany, Mo.  
 SHELLY, J. R., Shannon, Ill.  
 SHIELDS, JAMES T., Bean's Station.  
 SHORTRIDGE, S. M., Pleasant Grove, Iowa.  
 SHORT, S. A., Mechanicsburg, Ill.  
 SHRYER, JOHN G., Carlinville, Ill.  
 SIBBLES, WILLIAM, Lebanon, Ill.  
 SIMPSON, JAMES, Seward, Neb.  
 SIMPSON, J. F., Carrollton, Ill.  
 SLASON, GEO. F., Vinton, Iowa.  
 SMALL, JOHN, Walter's Falls, Ont., Can.  
 SMITH, JULIUS, Blackstone, Ill.  
 SMITH, J. F., Batesville, Ark.  
 SMITH, SAMUEL, Rushville, Ill.  
 SMITH, S. D., Demopolis, Ala.  
 SMITH, WM., Detroit, Mich.  
 SMITH, W. M., Lexington, Ill.  
 SMITH, W. M. & S. M., Rolla, Mo.  
 SNAVELY, D. B., Hudson, Ill.  
 SNOOK, D. J., Utica Mills, Md.  
 SNELL'S SONS, JOHN, Edmonton, Ont., Ca.  
 SPAULDING, J. B., Riverton, Ill.  
 SPEAK, JOHN T., Carlinville, Ill.  
 SPRAGUE, G., Des Moines, Iowa.  
 SPRAGUE, W. H., Boone, Iowa.  
 SPRINGER BROTHERS, Springfield, Ill.  
 SPURGIN, W. H., Guthrie Center, Iowa.  
 SQUIRE, W. A., Kenney, Ill.  
 SUMNER, BENJ., Woodstock, Conn.  
 STAATS, J. & SONS, Dana, Ind.  
 STACY, FITCH B., Stacyville, Iowa.  
 STACY, T. P., Jacksonville, Ill.  
 STAMM, M. P., Hamilton, Kan.  
 STANSBURY, UPTON, Plymouth, Ind.  
 STEARNES, CHAS. D., Litchfield, Ill.  
 STEELE, S. N., Macon Station, Ala.  
 STEERE, E. B., Bull Creek, W. Va.  
 STERLING, WM. J., Springfield, Ill.  
 STEVENSON, CHAS. G. & BRO., West Point,  
 Iowa.  
 STEVENSON, MRS. DORA, Little Indian, Ill.

- STEVENSON, JAMES W., Bruceville, Ill.  
STEVENSON, JOHN R., Traer, Iowa.  
STEWART, JOHN R., Moingona, Iowa.  
STIFF, E. R., McKinney, Tex.  
STOKES, T. H., Lincoln, Ill.  
STONE, CHAS., Peabody, Kan.  
STOOKEY, GEO. H., Freeburgh, Ill.  
STOOKEY, M. T., Belleville, Ill.  
STRATTON, SAM'L, Litchfield, Ill.  
STRAWN, ABNER, Ottawa, Ill.  
STRAWN, JOEL R., Chatsworth, Ill.  
STRAWN, ROBT. C., Ottawa, Ill.  
SWANWICK, RUSSELL, Cirencester, Eng.  
SWIFT, L. C., Plano, Ill.  
TAYLOR, C. S., Burlington, N. J.  
TAYLOR, E. T., Macon Station, Ala.  
TAYLOR, N. R., Williamsville, Ill.  
TAYLOR, WM. S., Burlington, N. J.  
TERRY, JAMES Z., Byron, N. Y.  
THATCHER, R. & SON, Flemington, N. J.  
THOMPSON & DAWSON, Rinard, Ill.  
THOMPSON, S. M. & J. F., Canton, Ill.  
TILTON, W. S., Augusta, Me.  
TOBERMAN, WM., New Holland, Ill.  
TOMLINSON W. H., Jr, Sewanee, Tenn.  
TOWRY, JAMES, Springfield, Ill.  
TUCKER, F. F., Chelsea, Mich.  
TURNER, H. R., Fowler, Ohio.  
TURNER, THOS. J., Virden, Ill.  
VANDERCOOK, W. C., Cherry Valley, Ill.  
WAIT, HENRY W., Greenville, Ill.  
WARD, ED., Lamar, Ma.  
WARREN, GEO., Middletown, Ill.  
WATERS, G. W., Sharon Center, Ohio.  
WATT, J. & W., Salem, Ont., Can.  
WATTS, A. B., Farmingdale, Ill.  
WEBER, GEO. P., Pawnee, Ill.  
WEBER, JNO. B. & SON, Pawnee, Ill.  
WEBSTER, H. S., Union Mills, Ind.  
WEDDELL, S. S., West Newton, Penn.  
WEER, H. H., Carlinville, Ill.  
WENDELL, THOS. & SON., New Holland, Ill.  
WESTBROOK, T. M., Covington, Texas.  
WHEELER, HENRY, Hudson, Ill.  
WHERRY, D. J. & J. H., Victor, Iowa.  
WHITESIDE, G. W., Walnut Grove, Mo.  
WILHOIT, THOS. & SON, Middletown, Ind.  
WILLIAMS, A., Paw Paw Grove, Ill.  
WILLIAMS, H. H., Mankato, Minn.  
WILLIAMSON, W., Ravenna, Ohio.  
WILSON, ED. S., Olney, Ill.  
WILSON, THOS., Earlville, Ill.  
WILSON, WM., Earlville, Ill.  
WINTER, WM. J., Massie, Ont., Canada.  
WISE, A. H., Freeport, Ill.  
WOLFE, E., La Place, Ill.  
WOODRUFF, H. S., Janesville, Wis.  
WOODS, J. N. & B. F., Morris, Ill.  
WYCKOFF, C. S., Cuba, N. Y.  
WILLIAMSON, T. J., Thorntown, Ind.



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ORIGIN, BREEDING AND MANAGEMENT

OF

BERKSHIRE SWINE.

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BOARD OF ADJUTANTS

GENERAL

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## AUTHOR'S NOTE TO PREMIUM ESSAY.

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In regard to the subject in hand, I desire to remark, in advance, that the history which appears herewith, of the origin of the Improved Berkshire Swine of England, and its breeding there till fully perfected, is made up almost entirely from *my own personal researches, enquiries and observations*, on my first visit to that country, in the year 1841. In order to more thoroughly accomplish this purpose, I perambulated Berks and the contiguous Shires at various times, in every promising direction, being kindly accompanied in turn, by several of the most intelligent breeders of this sort of stock who resided in the country. What relates to this subject in America, is also made up from similar researches in the States of New Jersey and New York, where, so far as I can learn, the Improved Berkshire Swine were first imported and bred.

All I have to say on the breeding and management of them comes from *my own long experience*, having formerly kept and bred for several years on my farm, on the east bank of the Niagara river, a much larger herd than any one else then possessed, either in the United States or Canada. Since giving up breeding as above, I have continued to visit other breeders, and to deal in them extensively, not only by purchases and sales in America, but also in repeated consignments direct from some of the best herds in England. From this, and a second visit to England, in the year 1867, I trust I have been able to keep up with all of importance regarding Berkshire Swine, down to the present time.

Lest, also, some of the ideas and expressions in this essay may appear to have been taken from others, I would add, that I have written considerably on the subject in hand, for nearly forty years past, for various Agricultural Journals, and the greater part of the Report on Berkshires, published in "The Proceedings of the National Convention of Swine Breeders, held at Indianapolis, November, 1872." These writings have been pretty generally copied, from time to time, into other journals, and occasionally without giving credit either to myself or to the periodicals in which they originally appeared.

The late Mr. William Youatt, of England, in his work on "The Pig," published in London, in 1846, if I recollect aright, and republished the following year in Philadelphia, Pa., by Messrs. Lee & Blanchard, selected largely, without credit, from "A Chapter on Swine," illustrated with six different figures, which I wrote for the "Cultivator" of Albany, New York, and which appeared in its January number, for the year 1840. This article was copied, with all its illustrations, a few months later, into the London "Mark Lane Express," and I believe, also, into the London "Farmers' Magazine;" these periodicals, however, gave due credit for the same, both to the "Cultivator" and myself. I am thus particular in stating the above facts to the Awarding Committee, that they may know that what I herewith submit for their consideration is nearly all *original* with myself, and newly and more fully written than anything I have yet given to the public, "On the Origin, Breeding, and Management of Berkshire Swine.—A. B. ALLEN.





# PREMIUM ESSAY.

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## THE ORIGINAL BREED OF BERKSHIRE SWINE.

Tradition, and the earliest published accounts of what has long been particularly distinguished by the name of Berkshire Swine, represents them, down to about a century since, as among the largest breeds of England, weighing, full grown, from 700 to 1,000 pounds, or more. The "Complete Grazier" describes one, in 1807, as weighing 113 stone, (904 lbs.) This was exhibited, with others, by Sir William Curtis, at the cattle show of Lord Somerville, in that year. Johnson, in his "Farmers' Encyclopedia," London, 1842, says that they weighed at that time from from 50 to 100 stone (400 to 800 lbs.) The latter of these, doubtless, were of the improved breed.

Originally they were represented as being generally of a buff, sandy, or reddish-brown color, spotted with black, occasionally tawny or white spotted in the same manner. They were coarse in the bone; head rather large, with heavy flop ears; broad on the back; deep in the chest; flat-sided, and long in the body; thick and heavy in both shoulders and hams; well let down in the twist; bristles and long curly hair, with rather short, strong legs. Their meat was better marbled than that of any other breed of swine in Great Britain—that is, had a greater proportion of lean freely intermixed with fine streaks of fat, which makes it much more tender and juicy than it would otherwise be. They were consequently, from time immemorial, preferred to all other swine there, for choice hams, shoulders and bacon. They were slow feeders, and did not ordinarily mature till two and a half to three years old.

It is thus that I find the Berkshire hog figured and described in the earliest English publications to which I have been able, thus

far, to obtain access. But in the second volume of the magnificent folio edition, illustrated with colored plates, now lying before me, of "The Breeds of the Domestic Animals of the British Islands," by Professor David Low, published in London, in 1842, is a portrait of a Berkshire as I have described above, except being of rounder body and somewhat finer in all his points, with ears like most of those of modern breeding, medium in size, and erect, instead of flopping. This portrait is of a sandy or reddish brown color, spotted with black; the feet and legs for nearly their whole length, white, slightly streaked on the sides and behind, with reddish brown. It, of course, represents one of the old breed considerably improved, and marked as I occasionally found them in all my visits to Berkshire, down to 1867. But the pigs which I saw thus marked were of the same size and shape, and as fine in all their points, as the general run of the black, slate, or plum colors of the present day.

#### FORMATION OF THE IMPROVED BERKSHIRE SWINE.

Tradition tells us that this was made by a cross of the black or deep plum colored Siamese boar, on the old unimproved Berkshire sows. Other traditions assert that the black and white spotted, and even pure white Chinese boar was also sparingly used to assist in the same purpose. I can well believe this; for I often saw swine in Berkshire spotted, about half and half black and white, in addition to the reddish brown, or buff and black, and so on almost up to a pure plum color or black. The produce of the above cross or crosses was next bred together, and by judicious subsequent selections, the improved breed, as we now find it, became, in due time, fixed and permanent in all its desirable points.

Another feature, aside from the half and half black and white spots hitherto occasionally found to mark the improved Berkshire Swine, which may be adduced in support of the supposition of a sparing cross with the white and light spotted Chinese, is the shape of the jowls. All these which I have bred in my piggery, or imported at different times direct from China, or have seen elsewhere, had much fuller and fatter jowls than the Siamese. Some of the breeders in England preferred the fat jowls, because carrying the most meat; others the leaner, as they said this gave their stock a finer and higher bred look in the head.

#### THE SIAMESE SWINE.

In the same volume of Professor Low, which contains the Berkshire portrait as described above, is a colored plate of a Siamese

sow. She is a dark slate, varying to that of a rich plum color. The two hind feet are white; the fore legs and feet white, shaded in front with plum. The face is dished; head fine, with short erect ears; shoulders and hams extra large; back broad, with a deep, round and longish body. This sow is represented with a slightly swayed or hollow back, at which we need not wonder, considering its length, and that she has a litter of nine great, fat pigs tugging away at her dugs. These Prof. Low says were got by a half-bred Chinese boar, which I presume, from the color of the pigs, was white; for some of them were pure white, while others are mixed slate or plum and white, and one is a buff, with black spots, like the original Berkshire.

I will now describe the Siamese Swine, such as I possessed and bred for several years on my own farm. They varied in color from deep rich plum to dark slate and black; had two to three white feet, but no white on the legs or other parts of the body. The head was short and fine, with a dished face, and rather thin jowls; ears short, slender and erect; shoulders and hams round, smooth and extra large; back broad and somewhat arched, except in sows heavy with pig or suckling pigs, but even then it was straight rather than swayed; body of moderate length, deep, well ribbed up, and nearly as round as a barrel; chest deep and broad; twist well let down; legs fine and short; tail very slender and well set, with a handsome curl in it near the rump; hair soft, silky and thin; no bristles even on the boars; skin thin and of a dark hue, yet when scalded, scraped white; flesh firm, sweet and very tender, with less lean than in the Berkshire. Although so compact, round and smooth in build, they had a fine, high-bred, up-headed style, especially in their walk, which instantly attracted the attention of all who called to see them. They were moderately prolific, and as hardy as any other breed of swine I ever kept, the extremes of heat and cold never injuring them. They were gentle in disposition, very quiet, and easily kept, and would partially fatten on good pasture, or coarse, raw vegetables. They could be made fit for the butcher at any age; matured at 12 to 15 months old; and when fully fattened, generally weighed from 250 to 300 pounds, occasionally going to 350, or even 400 pounds. They had very fine bones and light offal.

It was, doubtless, with Siamese boars as perfect as I have here described, that the cross was made on the original Berkshire sows, which has contributed so largely to the formation of the improved breed, held in such high estimation for a full century or more past.

## WHEN WAS THE CROSS FIRST MADE?

Several aged men in different parts of Berkshire, of whom I inquired on my first visit to England, in 1841, informed me that they had known there improved swine of the same type as I then found them, from earliest childhood. But the most particular, and apparently reliable, account I was able to obtain, was from Mr. Westbrook, of Pinckney Green, Bysham, who told me that his father possessed them as early as the year 1780, in as great perfection as the best then existing in the country. Thus it will be seen that the improvement is now at least a century old, and more probably a century and a quarter; for it would have taken some years back of 1780 to begin a new breed of swine, and get it up to a fixed type at that period.

## CHARACTERISTICS OF THE BEST OF THE IMPROVED BERKSHIRE SWINE AT THIS TIME.

Snout and head fine and rather short, but larger in proportion to the body in the male than in the female, and with a bolder and more determined expression; face dished and broad between the eyes; jowls full or thinner, according to the fancy of the breeder; eyes bright and expressive; ears small, thin and upright, or inclining their points a little forward; neck short, rather full in the throat, and harmoniously swelling to the shoulders; chest broad and deep; back broad and moderately arched; rump nearly level with it; well let down in the twist; body of good length and depth, round with well sprung ribs, and straight along the sides and under the belly; shoulders, above all, in the boar, extra thick, yet sloping smoothly to the body; hams broad, round, deep, and so thick through from side to side, particularly in the sow and barrow, that, standing directly behind, except when pretty fat, the sides of the body are scarcely seen between them and the shoulders; legs fine, strong, of moderate length, and set rather wide apart; feet small, with clear, tough hoofs; tail slender and well set, with a handsome curl near the rump; bones fine and of an ivory-like grain and hardness; offal very light in comparison to weight of carcass; hair fine, soft and silky; no bristles, even on the boar; skin thin and mellow, with elastic handling of the flesh beneath; quick and spirited in movement; stylish in carriage, and, in the boar, more especially, bold and imposing in presence.

## COLOR AND MARKING.

The most favorite color among the best breeders in Berkshire, in 1841, was a deep rich plum, with a slight flecking on the body

of white, or a little mingling with it of buff; a small blaze in the face; two to four feet white, and more or less white hair in the tail. The plum color was preferred to the black or slate, because it carried rather higher style and finer points with it, a superior quality of flesh, softer hair and thinner skin.

The above is no ideal description of choice improved Berkshire Swine, for I found several such in traversing the country, and purchased and sent them home to grace my own piggery. Nor, with all these points, were they lacking in size; and to substantiate this assertion, I will here note the dimensions of one of those I imported at this time, which I called Windsor Castle, he having been bred and reared near that magnificent royal residence, standing in Berkshire.

As he lay down he measured, in a direct line along the side, from the tip of his nose to the end of his rump, six feet, three and a half inches. If measured standing up, with his head stooping towards the ground, by running the tape line from the tip of his nose over the head between the ears, and along the back to the end of the rump, as swine are often measured, it would have made him upwards of seven feet long; but I do not consider this a fair way of measuring. Height to top of shoulder two feet eleven inches; height to top of rump, three feet; girth close behind the shoulders, five feet six inches. He was in rather lean condition when I measured him, as I kept him so in order not to be too heavy to serve small sows. It is well known that when a Berkshire is fully fed, in addition to the meat on his sides, he lays two to four inches more on his back. I am confident if Windsor Castle had been altered to a barrow and fully fattened, he would then have measured three feet and two inches high to top of shoulder, and three feet three inches high to top of rump; would have girthed a round the heart seven feet, and weighed, dressed, at least eight hundred pounds. He was as fine in hair and all his points, and as good a handler as the choicest of those of smaller size; and for a combination of size, style, vigor, and noble presence, he exceeded anything I ever saw or ever expect to see in the *genus Sus*. A friend of mine, who was a special nice judge and breeder of horses and cattle, but who hated hogs; and would go as far to kick one as the celebrated late John Randolph, of Roanoke, Virginia, was in the habit of declaring he would go to kick a sheep; on visiting my piggery and seeing Windsor Castle, was so surprised and delighted with his superb appearance, that he exclaimed he was the only one of this sort of stock he had ever looked upon

which had any *poetry* in him, and that for his sake alone he should henceforth be reconciled to swine.

#### SIZE OF THE IMPROVED BERKSHIRE.

I have heard of those, both in England and America, whose dead weight, dressed, occasionally exceeded 800 lbs.; but at the time I first visited the former country, the general weight, full grown, was about the same as at the present time—namely, from 300 to 600 lbs., according as the smaller or larger pigs were selected from the litters for fattening, and as they were subsequently fed and attended. The smaller sizes matured several months the quickest, and were preferred in the markets for fresh pork; and for curing also, for those who were particularly nice in the choice of their meat, being rather more tender and delicate than the larger animals.

#### QUALITY OF MEAT.

The meat of the improved Berkshire, like that of the unimproved, abounds in a much greater proportion of sweet, tender, juicy lean, well marbled with very fine streaks of fat, than other breeds of swine; but the former was far more delicate as now, than the latter ever was. This renders the whole carcass the most suitable of all for smoking. The hams and shoulders are almost entirely lean, a thin rim of fat covering only the outside.

#### MATURITY.

The improved Berkshire could be fattened at any age. Barrows matured in 12 to 18 months, according as selected from the litters, whether the largest or smallest, and as subsequently fed and treated. It took boars and sows reserved for breeding about six months longer to get their fullest size and weight, not being pushed by high feed so rapidly as those destined for more immediate slaughter.

#### EARLIEST IMPORTATIONS INTO AMERICA.

The first importation into this country, of which I find record, was made in 1823, by Mr. John Brentnall, an English farmer who settled in English Neighborhood, New Jersey. I became acquainted with his sons after their removal to Orange county, New York, and purchased of them stock descended from this importation.

The next were imported in 1832, by Mr. Siday Hawes, an English farmer who settled in Albany, New York. He subsequently made other importations, some of the descendants of all which I added to the stock on my farm.

I have heard that by the year 1838, a few followed into Canada, and some of the Western States, from England. I bought a small lot that came into Western New York in 1839; and late that year, Messrs. Bagg & Wait, English farmers who had settled in Orange County, New York, began their large importation, which they continued for several years, disposing of them mainly in Kentucky, Tennessee, Missouri and the South. In 1841, I selected in Berkshire, England, and imported into New York, upwards of forty head of the choicest of the Improved Breed of Swine I could find there. The above have been followed by numerous other importations down to the present time, both into the United States and Canada. Those curious as to the particulars of these will find them pretty fully recorded in the various Agricultural journals of America. As the greater part of these earlier importations have long since been bred out and forgotten, and have now little if any interest with the public, it will not be expected of me that I take any further notice of them in this brief Essay.

#### SELECTION OF STOCK, BREEDING AND REARING.

*The Boar.*—As a single male is used to many females, and is generally admitted to be the most prepotent of the two sexes in giving character to their stock, it is very important in selecting the boar, to obtain one as perfect as possible. For the points governing such, I need only refer to what has been heretofore described under the head of “Characteristics of the Best of the Improved Berkshire Swine.” I will simply add to this, that if we are to choose between over refinement and a strong masculine expression in the boar, we must accept the latter in preference to the former, even at the expense of a little coarseness.

#### PEN AND PASTURE ACCOMMODATION OF THE BREEDING STOCK.

*Treatment of the Boar during Service.*—During cold weather he should have a tight, high roofed, roomy pen, with good ventilation and a plank floor, kept clean and well littered, to feed and sleep in. Let us large a yard as convenient and of a dry soil adjoining, for rooting and exercise, communicate by a door through which he can pass out and in at pleasure. If this be hung by the centre of each side, he can open it by putting his snout lightly against it, and then after passing, it shuts of itself. Plant one or two upright posts of rough surface in the yard for him to rub and scratch himself against. During warm weather let him be turned

into a well shaded grass or clover pasture, with running water or ample slough to wallow in. This would enable him to recruit well from the services and confinement of the preceding months, and make him useful for a greater length of years. While there at rest, he should not be so high fed as when in service; at the same time he should not be suffered to get too thin in flesh, but be kept in fair condition. While here no other swine ought to be in sight or hearing, otherwise he would be constantly roaming and fretting about the pasture, instead of remaining quiet, as is necessary in order to fully recruit.

*Feed.*—This may be varied according to place and circumstances. Let a due quantity be given at fixed hours, as nearly as possible, morning, noon and night. See that he has no more than he eats up clean. After feeding give all the pure, fresh water that he will drink, taking care in winter that it is not too cold, otherwise indigestion or colic might follow.

When the boar is much used, I have found the best general food to be ground corn and oats, mixed half and half. Add to this from a pint to a quart of oil or cotton seed meal, and a teaspoonful or two of salt to every peck of the mixture, and then wet up with water. If cooked or suffered to ferment before feeding, so much the better. Confined to his pen, give him a few roots daily—sugar beet is the best—or a little fresh cut grass or clover according to the season; but not enough of either of these to make him scour or even dung loose. Chunks of decayed wood and charcoal should be constantly in his yard to gnaw at pleasure. For want of these, a bushel or two of anthracite or bituminous coal ashes can be substituted to root over. Half a gill of wood ashes may be put into his feed once a week, or a tablespoonful of sulphur once a fortnight. A pint of pure crushed bones now and then, is a good thing to throw on the floor to be picked up as relished. If he gets a little costive, change his food two or three times to a warm bran mash or shorts, or throw a clod of fresh clay into the yard for him to munch at. When in pasture the decayed wood, charcoal, etc., may be omitted. Treated as above, I have never known my boars become ill.

*Service.*—Unless a finer boned and smaller sized stock is wanted than the present parents, the boar should not be permitted to serve sows before six months old, and it would be better if he were kept back till nine months old, and then only used sparingly till he had attained the age of twelve months. After this he may be used more liberally, and at eighteen months may be considered in full



vigor. The number of females a boar can effectually serve per annum, and insure strong healthy offspring, may be from 30 to 70, or even 100, dependent entirely on his constitution, feed, general treatment, and whether he covers each sow only once or oftener. If it exceeds the latter number, it might endanger the vigor of his stock. One coition is as good usually as more, and produces as numerous and strong offspring. But I once had a sow that not even half a dozen coverings of the same boar would make pregnant; and to assure this, had to let in several, one immediately after the other to serve her, till she was so tired as to lie down and permit no further intercourse. She was then separated from all contact with males, and in due time gave birth to a fine vigorous litter of pigs; and of as much uniformity in appearance as the general run of the breed.

*The Sow.*—For the points governing the best, refer to “Characteristics of the Best.”

*Treatment.*—Do not introduce her to the boar just after eating heartily; defer it till between meals, when her food is at least partly digested. Nor do so when she is hot or tired, or has been worried by driving to the boar—wait till she gets cool and well rested. Immediately after service separate her from the boar, and keep her quiet an hour or two before exercising or driving, and let the latter be only a moderate distance.

*Best Age to First Breed.*—Unless extra coarse and large, and it is desired to make her finer in all her points, the sow should not be put to boar till eight months old, so as not to farrow till one year old. After this she may be regularly bred every six months, unless one desires to increase the size of the stock, then it would be best not to let her breed oftener than once a year, and have the pigs dropped in the spring at the North, or earlier in the year at the South, according to the climate. If the winter be long and cold, where the pigs are bred, they will be of little account to reserve for breeders if dropped in autumn. The pig is indigenous to a hot, or at least temperate climate, and if farrowed in autumn in a very cold one, is apt to get stunted, and makes little growth during the following winter. Such will answer better for fattening than breeding.

*When Pregnant.*—If of large size, not more than two sows should be kept together in the same pen, and these must be peaceable; if smaller, several may according to size; but in no case would I permit over half a dozen, even in an extra roomy pen, as

they are apt to crowd on to each other to their great injury and sometimes death, especially in cold weather. In a large wood lot or pasture, any reasonable number may herd together in warm weather; but as soon as the nights get cold, there is the same liability of their overlying each other here as in the pen. Strange sows should not be changed to run with each other when pregnant, for Berkshires are high-spirited, and they will often fight so hard under such circumstances as to receive much injury, or cause them to cast their pigs. One month at least before ready to farrow, each sow should be put in a comfortable pen by herself as described for the boar, and a few days in advance of pigging, be littered with short cut straw, as long straw is apt to entangle the young, till they get some strength. At the same time, if not done before, a smooth piece of joist with the front corners chamfered off, or a smooth half round pole, four to five inches thick, should be spiked on to the sides of the pen all around, four to six inches high from the floor, according to the size of the expected pigs, so as to enable them to escape under this from being overlaid by their dam, if they happen to be between her and the side of the pen when she lies down to give them suck. Sows ought to be watched when expected to bring forth, especially in cold weather. As soon as dropped, see that each pig is cleaned and takes the teat, and the dam rid of her placenta, which carry off immediately and bury. Some, however, prefer to let the placenta remain for her to eat if she chooses, as this would lessen the risk of her devouring the pigs in case she had a morbid appetite. After being nursed two or three times, the pigs, if lively, will generally take care of themselves, and need little further attention, unless the weather happens to be quite cold, they may then require to be covered with the sow while nursing, or to be put into a box by themselves, covered over with a thick blanket, and placed near a fire, otherwise they might get chilled and perish; for a young pig is a very tender animal.

*Feed.*—Store sows, or when breeding, should not be fed so high as the boar when in service, for they do not require it. They must be kept in only moderate condition; for if too fat they often become barren; or if they breed under such circumstances, the pigs are apt to be small and feeble; or the dam is so heavy and clumsy in her movements that she is liable to overlie or tread on and wound or kill them. An excess of fat also inclines the sow to be feverish at this time, and lessens the quantity of milk for her offspring. The best feed I have found for pregnant sows in winter,

is a reasonable allowance of wheat bran, or shorts, mixed up with hot water, or cooked, or roots, especially the sugar beet, boiled or steamed, and all slightly salted. To either of these messes add a pint to a quart of oil or cotton seed meal each day, according to the size of the animal. I often mixed the roots and bran together, half and half. If the sow is quite thin, this feed may be strengthened more or less, to get her into fair condition, with Indian, pea, bean, barley, or oat meal, or unbolted wheat, rye, or buckwheat flour, as either of these happen to be on hand, or are found best to agree with her. I have kept sows, inclined too much to fat, in good breeding condition all winter, on a moderate mess per day of raw sugar beets alone; and in summer on good clover or grass pasture. But occasionally a little bran or meal, or something else, in addition, may be required, particularly if the animals be large or rather long bodied. For weeks in autumn I have also kept them in good breeding condition on pumpkins alone. Winter squash, however, is superior, as being more nutritious, and having a less quantity of seed.

*After Farrowing.*—Give the sow tepid water to drink, for the first day, and feed lightly without changing the food. When the pigs get to be a few days old, and especially if numerous, increase the feed daily, and make it richer with oat, pea, bean, barley, or Indian meal, and an additional quart per day of oil or cotton seed meal. If there be milk or whey in the house to spare, add a moderate quantity of that. Judgment is required to properly feed a sow while nursing a large litter of pigs, to keep her up in good condition and her offspring rapidly thriving. To do this she must be closely watched, and the feed varied according to circumstances; for no strictly definite rules can be laid down regarding it. In a herd of twenty sows, no two, perhaps, can be fed and treated exactly alike during the time of gestation and nursing. Water her regularly, morning, noon and night; and as long as confined to the pen, give chunks of decayed wood, charcoal, etc., as prescribed for the boar.

*Extra Feed for the Pigs.*—As soon as the pigs will eat, fasten a strong box or frame in the pen, latticed sufficiently wide to admit the pigs inside. Here place a small trough, and as often as required during the day, feed them milk or whey with a little oil or other cooked meal and vegetables stirred in it. Such feed greatly relieves the dam in her nursing, and adds much to the growth of the pigs; they also wean better for it, and generally without scouring, or losing condition, or being checked in their growth.

*Weaning.*—Do this gradually, consuming about a week's time in the process. The first day take off one or more of the litter, according to their number, finally leaving only one, and at the proper time remove this also. During the week, daily reduce the richness of the food, stop giving milk or whey, if previously fed, and see that the remaining pigs draw from every teat. If they do not, it must be done by hand. The third day before definitely weaning, let the remaining sucking pig into the mother only three times, the second day twice, and the last day once. Then see that the sow's bag dries up speedily. If milk still remains, draw it out by hand, so as to prevent caking or a swollen bag, liable to end in running sores or a total loss of it, thus ruining the animal for future breeding. Berkshire sows are usually great milkers; and in order to dry them off it is sometimes necessary to reduce their food, for a few days, solely to a short grass pasture, or, in extreme cases, confine them to a close pen, giving nothing but water for twenty-four hours, and afterwards their 'Indian' meal gruel, or any food which has a drying tendency.

*Rest After Nursing.*—The sow should have at least four weeks rest after nursing her pigs, in order to recruit and gain strength before being put to the boar again. The period of gestation is sixteen weeks. Allow six weeks for nursing, which is enough for strong healthy pigs, and four weeks for rest, these make up a half a year. By adopting this method we get two litters per annum, which followed up year after year, is sufficiently exhausting the powers of the most vigorous females.

*Eating Her Pigs.*—Fed and treated as suggested above, out of hundreds of breeding sows I have kept, I never knew one to eat, or offer to eat, her pigs. If a tendency of this kind appears it shows an unhealthy appetite; and in addition to her other food, she ought to be immediately supplied with some fresh fish or butcher's offal to allay this inordinate craving for flesh. During this time she must be closely watched and prevented approaching her mouth to her offspring.

*Abortion.*—I do not recollect in all my breeding ever having but one case, and that came from a sow being sadly worried in a fight when pregnant. She was entirely cured by a two months' rest before allowing her to take the boar again. Being young and vigorous, her womb got sufficiently strengthened at the end of this time, and she ever afterwards bred regularly, producing good offspring. If so much rest does not prove sufficient for others, I would recommend a longer one, even four to six months, or more,

as the case may require. I have heard that hemp seed mixed with the other food is a preventive to abortion in all kinds of domestic animals; but not having occasion to try it, I can say nothing of this from my own experience.

*Best Age for Breeding.*—My experience is that both male and female generally produce their best offspring at 2 to 5 years of age. There are instances, however, of their doing this both younger and older. I should consider anything over 7 to 10 years old as quite risky in a breed so precocious and of such early maturity as the Improved Berkshire. I have heard, however, of a boar breeding well till he had attained the age of 20 years; but, it is not probable that a sow would prove a good breeder beyond half this age. Still, much depends on feed and treatment in keeping up vigor and promoting longevity.

HOW BEST TO BREED PIGS, THEIR FOOD AND GENERAL MANAGEMENT.

*Age of Parents.*—Other things being equal, those obtained from parents 2 to 5 years old are generally the largest and most vigorous, and from such I prefer to select for breeding.

*Time of Birth.*—If the climate where bred will safely admit of it, pigs ought to be dropped as early as March or April. By coming thus early, those destined for fattening, if continuously well fed, will be large enough for slaughter the following December or January, which is usually the best time for marketing. If born much later, it may be necessary to winter them over for another year, which lessens the profits of rearing considerably. Those reserved for keeping up the stock, coming thus early, will get so good a growth at one year as to breed then, advantageously.

*Treatment while Nursing.*—For this, "Extra Feed for Pigs."

*Feeding.*—Do this for the first few weeks after weaning, five or six times per day. This keeps them from an empty stomach or overgorging, both alike pernicious. See that they eat up their food each time before being again fed. After attaining three months age, they need not be fed oftener than three times per day, but this should be regularly done morning, noon, and night.

*Kinds of Food.*—The best food I have found for pigs for a few weeks after weaning, is as much cow's milk or whey as they will drink. Into this stir more or less, as required, of finely ground provender slightly salted, composed of six parts of oats, two of corn, and one of flax seed. If the latter is not at hand, substitute oil or cotton seed meal. If milk or whey are not to be had, use pure, fresh water. If all could be cooked, so much the better.

When more convenient or economical, other food may be substituted for the above, such as pea, bean or barley meal, and unbolted wheat, rye or buckwheat flour. Shorts and bran I have found are apt to scour them at this time, especially if uncooked. The same remark will apply to vegetables, apples, and other fruit, which if fed at all, should be first steamed or boiled, and then mixed with meal. Brewers' grains and malt combs are recommended, but never having tried them for very young pigs, I cannot speak of their suitability from my own experience. They are good for older animals.

Other kinds of food assist in producing a rapid growth of the pig, as offal from hotel tables, fisheries, slaughter houses, etc., but as few can avail themselves of these, I speak more particularly of such as is produced on the farm. Being an omnivorous animal, it does not matter so much as to the kind of food given, except when put up for fattening—then it must be grain or meal of some sort entirely—provided it keeps the pig in a healthy, thriving condition. Care must be had during growth to neither stuff nor scrimp, both being alike injurious.

*Treatment of Pigs Destined for Breeding.*—In warm weather, let them run in a grass pasture, if to be had, with pure running water and plenty of shade. In cold or stormy weather, provide yards with a dry soil and southern exposure, with comfortable pens or sheds, well littered, under which they can retire at will. Cold night air is pernicious to young pigs, and is liable to give them swollen throats, which sometimes prove fatal. Those of nearly the same age should be kept together, and not so many as to endanger any being overlaid and smothered. When kept in pens or yards, supply them with chunks of decayed wood, charcoal, etc., as described for the boar.

*Purging or Scouring.*—Young pigs are apt to scour when fed on too loose food. The best remedy I found for this, was to shut them up in a covered pen, with a plank floor, and feed entirely with well dried oats, or corn. Sometimes I gave, in addition, a little boiled flax seed or oil meal, mixed in their drink.

*Treatment of Pigs Selected for Fattening.*—Careful experiments have proved that time is economized, and that pork can be most cheaply produced, by pushing pigs forward as rapidly as possible, from the time of their birth to that of their slaughter, giving them regularly, at least thrice per day, all the most suitable food for this purpose which they will eat up clean, and digest. The last three weeks or so, finish off with Indian meal pudding,

or whole corn, with pure, fresh water for drink. Old corn, or well ripened and dry of the season's growth, is best. This makes the sweetest and most solid pork of anything I have tried. Some contend that roots and pumpkins have so great a proportion of water in them, that if fed with the whole corn or meal, they tend to an increased appetite, keep the bowels in better order, and lessen the quantity of water a fattening animal would otherwise drink. They add also, that this combined feed lessens the cost of fattening, and makes as sweet and solid meat as corn alone. I cannot vouch for this method, never having followed it; but if I did, I should use the sugar beet in preference to other roots, and the winter squash in preference to pumpkins, for I think they are best fitted for this purpose.

*Frozen Food.*—It is dangerous to feed this at any age or under any conditions, as it causes indigestion, colic, casting of the inwards, and other ailments. It is better not to give even cold food in the winter; warmed, and, above all, well cooked, the animals consume less and thrive faster on it. With a large herd, and convenient fixtures, it is doubtless economical to feed cooked food almost entirely.

#### SEPARATION OF THE SEXES.

The Berkshire pig is precocious, and the different sexes ought to be separated by, or before attaining four months age, otherwise they might breed together. It is better, also, after this, to keep the boars apart, or they will be constantly riding or worrying each other, which sometimes injures them for future breeding.

#### PREFERENCE OF DIFFERENT CHARACTERISTICS.

Pigs of the same litter, particularly if a large one, will differ somewhat in size, points, shades of color and flecking of white or buff. From these every one can make choice for his breeding stock, such as most please his fancy, and thus establish, in process of time, his own family characteristics of the Berkshire. Some will prefer plum, slate, or black for the main color, accompanied by the shortest head, body and legs, with fullest jowls; while others will choose a longer head, and more rangy body and legs, with thinner jowls, etc.; yet, with all these different characteristics, the purity of blood and general resemblance of the Berkshire breed will still remain fixed and permanent in each of these families.

## GENERAL MANAGEMENT.

Having said so much on the particular management of both sexes, old and young, of Berkshire swine, there remains little to add in a general way—for the whole thing can be summed up in the following few words: After selecting a fine, healthy, vigorous breeding stock, provide comfortable accommodations for it; feed and water regularly and judiciously; secure proper ventilation when confined to pens; keep the animals and all the premises within and without scrupulously clean; and give sufficient exercise in the open air, on dry, sunny ground, every day that the weather permits. Thus managed, stock will breed well and remain almost perfectly healthy. I kept a large herd of full grown Berkshire swine for years, producing during this time hundreds of offspring, and I recollect no disease of consequence, except two or three cases of affection of the kidneys, and these were in sows I had purchased from a distant piggery. I am persuaded that with proper feed and strict attention to sanitary measures, not only swine, but all other domestic animals, may be kept nearly free from disease, unless exposed to some contagion brought in from a distant quarter.

## GREAT ADVANTAGE IN KEEPING UP THE BERKSHIRE BREED OF SWINE, AS PERFECTED LONG SINCE IN ENGLAND.

There is a growing taste on the part of the American people, coinciding with that which has been cultivated a long time in Europe, for tender, juicy, well marbled, smoked hams, shoulders and side pieces, in preference to very fat, salt pork. This should be encouraged, as the former are not only the more palatable to persons in general, but are unquestionably the most healthy food. Considering these facts, the Berkshire, above all others, should be the favorite swine among us; and we ought to take all possible pains in breeding, rearing and fattening them in such a manner as to make a superior quality of smoked meat, not only for the home, but also for the foreign market.

Improved methods of curing and packing should likewise be adopted, so as to enable us to get as high a price in the English market as the best Irish bacon commands. This, I find often quoted 20 to 30 per cent. above American.

Indian corn, which in the United States grows in such abundance, is undoubtedly superior to anything which can be produced in Ireland, for making the best quality of *fat pork*; but I have heard this questioned as to *hams* and *bacon*. Some feeders contend that fine,



mealy potatoes, cooked and mixed with barley, oats, peas or beans, or several of these, fed together, will produce a superior quality of bacon. This is a matter worth enquiring into, and I would suggest an earnest consideration of it on the part of our feeders, and of those engaged also in bacon curing and packing. The Irish have one advantage over the Americans, in the English market; and that is in being so much nearer to it, they can cure their bacon and offer it on sale in a fresher and milder state than we are able to at present. If we should, on trial hereafter find that it can be sent forward at a profit, in refrigerators, kept down to a low and even temperature, we could then probably obtain as high prices in the English market as do the Irish, and thus add another desirable item to the exports of America.





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